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SOUTHERN AGRICULTURIST.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. LX.—*Anniversary Address, delivered before the Agricultural Society of South-Carolina, August* 19, 1834; *by* ROBERT W. ROPER, Esq.

(Concluded from page 517.)

These sources of wealth still admit of extension, and I congratulate cotton planters, and society in general, on the recent discovery of the practicability of extracting gas and oil from cotton-seed. In North-Carolina, an oil factory is now in complete operation, and large quantities of pure oil are prepared and used for all essential purposes. To rice planters, I would suggest the importance of a more thorough acquaintance with the peculiarities and adaptation of rice for any soil, especially the wild rice* to our inland

*"We here first saw in plenty the *folle avoine*, or wild rice, which is so common throughout the northwestern regions, and serves the Indians as a substitute for corn. We had previously noticed this plant in small patches, in passing through the river St. Mary, and along the shores of a few of the tributary rivers of Lake Superior; but it is in no place seen along the shore of the lake itself. Neither does that lake afford any of the water grasses, rushes, or liliaceous plants common to most of the lakes and ponds of the north. Naturalists do not seem agreed as to the character of this plant, and a discrepancy appears in the botanical nomenclature. Linnæus has arranged it as a variety of the species plantarum, under the name of *Zezania Aquatica*. Micheaux and Eaton denominate it *Zezania Clavulosa*. The Linnæan name is the most characteristic. Other names have been given by different botanists, but few in fact have enjoyed the opportunity of examining the plant in its natural situation, and it is not even settled whether the fruit is annually produced from

swamps; a particular species which flourishes on the edges of the Northern lakes, and in the swamps of the upper sources of the Mississippi. The peculiarities distinguishing it are, that it springs through any depth of water where the soil is soft and muddy, from seven feet deep, and rises upwards of five feet above the water. The produce is abundant, and the harvest made in boats. Success in introducing this kind of rice in the inland swamps of this

new seed, or the same root continues to germinate for many years. There can be no doubt, as Pursh has suggested, that it is a perennial plant. It ripens about the first of September, when the Indians gather it by pushing their canoes into the thickest fields of it; breaking down the tops of the stalks, and beating out the grain with their paddles, which falls upon a spread blanket in their canoes. This a labour which is performed by the squaws. A great deal of chaff falls in with the grain, which is afterwards partially fanned out upon a blanket, but it is never got entirely clean. The grain has a cylindrical shape, and becomes dark coloured and hard as it dries. In contains more gluten than common rice, and is very nourishing. It is simply boiled in water until it assumes a pasty consistence, and it has an agreeable flavour. The Indians have no salt, but make use of maple sugar, when in season. They have no method of reducing it into meal, but the squaws sometimes, in cases of sickness, pound small quantities in a deer-skin bag, and thus procure a kind of flour of which panada is made."—*Schoolcraft's Narrative Journal of Travels*, p 201.

"Rice, which will not grow but in the water, is sown on the banks of *jeels*, &c. or on the borders of rivers, in the mud, during the month of May. Too much seed can scarcely be used: the plant came up so thick as almost to bear up a man on their points: they resemble a beautiful green carpet. When the low grounds have been well irrigated, by the first showers, they are ploughed; though at times that operation has previously taken place; and the rice, which is taken up from the seed-beds to be transplanted in the fields, now becomes so heavy, that the setters wade up to their knees in slime, as they set the plants at about six or eight inches distance each way. This is done with their hands, no tools being necessary.

The rice grows amazingly fast: it fact, it is not easy to drown it. The great rivers often rise twelve or fourteen feet in twenty-four hours, yet strange to behold! the rice increases with equal haste, and still displays its fine green top above the flood. I have often pulled up rice straw eighteen and twenty feet long, from places which a week before were nearly dry. I was for a long time puzzled by this curious circumstance, but my wonder ceased when I exmined the plant. Each joint of the straw is to a certain degree perfect from the time that the rice is a foot high, and as the water rises, exclusive of each joint in itself, the whole of the several tubes or joints draw forth in a manner similar to the insertions of a pocket telescope. After a certain time the straw becomes hard, and contracting, form a *callus*, much the same as the joint in wheat or other straws. If a very high flood come, the rice floats, and is lost: as the tubes in such case slip out altogether.

I cannot say in what depth of water rice will grow; but if the rise be not very rapid, I conceive its increase would bear a suitable proportion even to the depth of forty or fifty feet. We may suppose that in some places it must be of that length, when vessels of considerable burden can sail through it for a whole day without touching the ground.

When the rice is ripe it is generally gathered in boats thoughout the lower country, else it must be left till the water withdraws, when it is cut in the usual way."—*Williamson's Oriental Field Sports*, vol. ii. pp. 185-6.

State, might once more bring into cultivation a vast body of abandoned lands, and awaken the voice of gladness in many a deserted habitation.

Various foreign products may be added to extend and improve those of South-Carolina. The Tea-plant is one of these, which is grown between the 29th and 31st degrees of latitude, corresponding to the northern parts of Georgia, and is also found in Japan, as far north as the 45th degree of latitude. In Barrow's travels, in Southern Africa, the plant is represented as a hardy shrub, which when once set is not easily eradicated. It is propagated by slips placed four or five feet apart, grows on a very indifferent soil, requires but a moderate temperature, and yields as many as four gatherings in a year; according to the time of year at which these gatherings are made, the leaves acquire their name and quality, the first being always the best, and so in succession, and the process of preparation is most simple and expeditious. The Tea-plant was introduced into Brazil by Don John, when he took refuge in that country, on his expulsion from Portugal. He imported plants from China and a number of Chinese, to teach the mode of cultivation, and at this day many of these people vend tea about the country. To say that the tea-plant may be introduced into the United States, would be superfluous, as it has already been grown at different times and places in the vicinity of this city. If it were necessary to urge the cupidity of Agriculturists, I would add, that ten millions of pounds are annually introduced into the United States alone.

The Vine* may easily be propagated among us. A talented citizen has already established the fact, that our very pine-lands will produce it in perfection, and that by grafting on the wild grape of the country, excellent fruit will be produced; information and application is all that is here required to fill our presses with the ruby juice, and our hearts with gladness. The Sun-flower† is a plant of great utility, the seeds yield a delicate oil by expression, which is equal to olive oil, and is used for the purposes of the table, for lamps, machinery, and paint, and furnishes an excellent food for poultry, sheep and hogs; and in Portugal, horses are fed from the blades and shoots, and

* Grape—vol. iv. Southern Agriculturist, p. 67. † Sun-flower, ibid. p. 56.

bread manufactured from the seeds. An acre of land will produce sixty bushels of seed, and from one bushel, four quarts of oil can be expressed. It is cultivated like corn, and on any soil on which that grain will grow.

Greece owes much of her support to the Olive. So readily is it propagated, that the wild Turk in his desolating career, could not eradicate from the land this gracious boon of heaven to the poor descendants of an enlightened and renowned ancestry. This luxury is at our option to possess, for the tree is extensively grown in Georgia, and no curiosity in our city gardens; and the native fruit has already been prepared among us of equal excellence with that imported. The Almond, may be cultivated as easily as the Peach. The Sugar-cane, the Orange, and Plantain, have gradually advanced northwardly, and on a neighbouring island, the Sugar-cane is now extensively cultivated. These tropical plants are said to require a mean annual heat of 73 degrees, and are not found beyond the 27th degree of latitude; but it is known that plants which are much stimulated by excessive heat, can support a great degree of cold, provided it be of short duration; and, according to Baron Humboldt, the thermometer sometimes descends in the Island of Cuba, to near the freezing point, in spots where the Banana is cultivated; and in Spain and Italy, Orange and Date-trees do not perish, although the cold be two degrees below zero.

I must advert, also, to the facilities offered in this climate for producing large supplies of silk. The Mulberry tree once planted can scarcely be eradicated; innumerable shoots soon form a thicket of trees, which may feed most extensive nurseries of worms. Limited quantities of silk of the best quality have frequently been prepared by individuals in this State, who made it a matter of amusement, but the demand would warrant extensive investments in the culture, as France, England and America annually purchase to the value of 140 millions of dollars of the raw material.

In availing ourselves of products immediately at command, the advantages of cultivating the Irish potato, (*Solanum tuberosum*) are conspicuous. This Potato is planted in February or March, and eaten in perfection in June. To labourers as a change of diet, or to planters who have

made short provision crops, the advantages are considerable. Among black labourers prejudice against this species of food sometimes does exist, but by apportioning corn or small rice, to which they have been accustomed, with their allowance of potatoes, or adding some animal condiment, this antipathy will be removed. Sir John Sinclair has given a most elaborate account of the culture and uses to which this root may be applied, (and I would recommend its perusal to every planter) and establishes the fact, that more food can be produced from one acre of land planted in potatoes, than from one planted in wheat. He states that from average returns to the British Board of Agriculture, a fair estimate of the product of a British acre of potatoes amounts to 16,000lbs., of which one-fourth consists of solid matter, and the produce in flour 2700lbs. whereas the produce of an acre of wheat is only 2000lbs. In corroboration, he adduces the testimony of Sir Humphrey Davy, which I beg leave to transcribe, viz. "that though in 1000 parts of wheat there are 950 nutritive, and in 1000 parts of potatoes only 230 nutritive; yet as nine tons are produced from an acre of potatoes, but only one ton from wheat, the acre of potatoes yields more than double the quantity of human food compared to an acre of wheat, or in the proportion of 207 to 95 nutritive parts." Multitudes of people in Europe now subsist on this root, and the numerous ways in which it can be prepared, designate it as a proper food for man.

Good management might secure to the planters of this State various supplies in domestic economy, for which, I say it with indignation, we are indebted to neighbouring States, less favoured by soil and climate than our own. Large sums are annually expended for corn, peas, oats and hay, while nothing but an all-absorbing desire to produce more rice and more cotton, prevents our reaping a full supply at home. At one period corn was exported from this country, and native grasses are luxuriant and abundant. The crab and crow-foot grasses spring in every corn-field, and abound on our rice-field banks, and by culture have yielded 5000lbs. to an acre. The Gama grass, though indigenous to the country, has but recently received notice, and acquired great commendation from its prolific character. It grows on light and sandy soils, resists drought, is planted in March in drills, after-

wards is transplanted two feet apart, and in September becomes highly luxuriant. The following spring, by adding a little manure and stirring the earth between the plants after every cutting, an ample produce will be afforded. This grass can be cut every thirty days, and from 75 to 90 tons of hay have been gathered from an acre of manured pine-land. The Guinea grass is domesticated among us, and grows with great rapidity; it springs from the seed, is then transplanted, and about the commencement of July attains maturity for feeding, and till frost may be cut once a fortnight. In the West-Indies, this grass forms the principal food for their cattle, which are equal to any reared in other countries.

South-Carolina is emphatically an Agricultural State, and scientific information, with personal supervison, are alone necessary to develope the resources of a favoured country. Every planter should endeavour to increase the stock of useful information. The improvement of Agriculture depends as well upon the operations of mind as physical exertion. the last but demonstrate what the first conceives, and this constitutes Science. Knowledge is advanced by communicating our thoughts, comparing our plans, and catching from the most humble intellect, some idea to assist in rearing a useful structure. To insure success in this branch of information, the energies of all must be combined, societies must be formed, periodicals established, often issued, at the cheapest rates, and universally patronized. I cannot press too earnestly the benefits to be derived from well conducted Agricultural Societies. Every parish and district in the State, should have one or more established within its prescints, and by reciprocal correspondence communicate the earliest information of new experiments and inventions. Visiting Committees should seek out and introduce to public notice, the efforts or success of the diffident and unlearned, and encourage them to give without fear of criticism, their practical observations, as a chart by which Science may deduce most useful inferences. Schools should be established in this State on similar principles with those of Europe. In Germany, there are a number of Forest Academies, where the principal branches taught are Forest-Botany, Mineralogy, Zoology, Chemistry, &c. by which the learner is instructed in the natural history of forests,

and the mutual relations of the different kingdoms of nature. He is instructed in the mode of raising all kinds of wood, and supplying a new growth as fast as the old is taken away. Also, in Switzerland, the art of Husbandry is a branch of education, and intervals from classic study are occupied by practical illustration; and the student is taught to labour with his hoe and spade, in gardens appropriated for that purpose. And why should the scholar, who has accompanied the Mantuan bard through smoking Troy and hard fought fields, not follow when he teaches to till the earth, points to waving harvests, or would recline in pastoral scenes. No information could be a surer dependence on failure of other resources, especially in this State, which must be Agricultural, for the face of the country declares it, and no exertion, moral, physical, or political, should be neglected to develope its resources, and make them fully available. Ignorance of true principles of Husbandry have cost millions to possessors of landed estates, who, with heavy hearts, have deserted their abodes, friends and comforts of civilized life, to seek in distant wilds those means of subsistence which art and education may have supplied at home. Of 16,000,000 acres of land comprized within the territorial limits of South-Carolina, not 1,300,000 are cultivated, and barren, indeed, must be the State, where 14,700,000 acres are unimprovable. But we know that forsaken lands have been rendered productive, by more skillful proprietors, and extensive improvements made available: previous to the use of salt-mud, as a manure, many of the island plantations were considered exhausted and valueless, but now are highly estimated from their proximity to this great restorer. On soils where calcareous matter predominates, large and repeated crops of saintfoin are produced by adding certain manures, which alter and improve the soil, rendered poor from a perpetual succession of the same crops.

This subject is intimately connected with national prosperity. An abundance of the necessaries of life, can alone afford security and content against the cravings of want. Without a swelling garner the cattle cannot be fed, the land manured, or draft animals kept in condition to labour. If supplies are calculated on from abroad, still is the expense to be defrayed from the crop, attended by trouble

of transportation, chances of a high price, and an indifferent supply. Should this dependence on the merchantable commodity fail, a succeeding crop must be anticipated, and in the interval, the humble expedient adopted of living on a factor, or the more dangerous one of borrowing, with, perhaps, chances of bankruptcy. Nor will policy or humanity allow retrenchments to be made in the heavy expenses, incident to the provisioning, clothing, and general care of a large body of operatives, who cannot be thrown starving upon a community, as is done where free labour prevails, when a fluctuating market makes it suit the interests of monied proprietors. It should be remembered, too, that for half of the year, a Southern planter is banished from his pursuits by danger of disease, and abandons his property to individuals seldom attached, sometimes without principle, and never with education. A greater dependence on, and avail of the internal resources of a country, greatly improve its agriculture, and individual happiness of its inhabitants. Dreams of realizing independent fortunes with rapidity, and ideas of luxurious display must be abandoned, the expenditure must be made to meet the income, and warning taken, from those sanguine temperaments, who goaded by a disposition for accumulation, or misled by false calculation of annual increase and permanency of staple prices, have plunged into purchases, and accumulated burdens to be terminated in disaster, or only realized after a long life of toil, anxiety and hazard. Indeed, the life of a Southern planter who conscientiously attends to the duties of his profession, is not what it is supposed, a life of luxury, of little care, perhaps, of idleness. A heavy weight of moral and religious responsibilities devolve upon him, especially where a number of his fellow creatures are subject to his control. Moral firmness is absolutely requisite, discipline must be preserved, and a proper police maintained to constitute a good neighbour and useful citizen. Activity in the proprietor must give impulse to the labourer, and insure the working of the fields with neatness and advantage. In fine constant solicitude and unwearied personal attention can alone render it prosperous, and I may add, even respectable.

But I am not now addressing myself to the uninitiated, and need advance no more on this theme. It only re-

mains for me to offer to the Society my thanks for their indulgence and attention, while I so long trespassed upon their patience. My own experience in Agriculture has aided me but little, in compiling these remarks, and I am indebted to the researches of others for the information contained in them. I congratulate the Society on on the recurrence of their anniversary; when, cheered by health and the existence of promising crops, they can once more assemble to advance the cause of Agricultural Science, be the continued promoters of a nation's wealth, and examples of all those private virtues which peculiarly attach to RURAL LIFE!

ART. LXI.—*On the Trees, Shrubs and Plants, valuable for their Fruits or in the Arts, that might be introduced and cultivated to advantage in Carolina; by the* EDITOR.

The intelligent and patriotic cultivator of the soil, should feel an interest in the introduction of all such new plants and vegetables, as promise to be ornamental or profitable; indeed, he should consider that the rich staples of our country are at present but few, and that the time may ere long arrive when these will be produced in such profusion in the Southern and Western States, that his profits will be considerably curtailed, and he or his posterity may yet derive a support from the cultivation of articles which are now either unknown or neglected. It is in anticipation of the probable occurrence of such an event, that we proceed to notice a few trees, shrubs, &c. which we think might be readily cultivated in the open grounds of Carolina. Some of these are more valuable than others, and a few may, possibly, not be adapted to our climate—still we have been very careful in our selection, and we think that those of our wealthy and spirited planters and horticulturists, who would go to the expense and trouble of importing them, would be disappointed in

but few of them. We have purposely excluded from our selection, all shrubs and plants cultivated merely for ornament.

Chinese Mulberry Tree, *(Morus multicaulis.)*

This mulberry tree (or it should rather be called a shrub) is but of recent introduction, and for quickness of growth, and for all the purposes of affording facilities in rearing the silk-worm, is decidedly superior to the white or our native black mulberry tree. It posseses the following advantages over all others: it grows more like a shrub than a tree, and is consequently more accessible, and the leaves may easily be gathered by old persons and children—the leaves are larger, and may be picked a month earlier than those of the others. It grows in the open ground as far north as New-England, but is sometimes injured in its first year by the frosts of winter; it would not sustain such an injury with us, and we have no doubt from the few plants we have seen here that they are admirably adapted to our climate. There are thousands of acres of our healthy pine-barrens, where the raising of silk, particularly the raw material, might be found profitable. We think we would be more certain of success in the production of this material, than in the cultivation of the vine. Cuttings and plants can, at this season, be procured from nearly all the nursery-men of the North. The plants are easily multiplied from layers and cuttings.

New-Zealand Flax, *(Phormium tenax.)*

This is a perennial broad-leaved plant, resembling an agave or aloe. The flax produced from this plant, for strength and whiteness of fabric, is superior to any other analogous material. In the year 1828, there were imported into Great-Britain from Sidney, sixty tons of this flax which sold for £2,600 sterling. In 1830, there was imported from the same place, 814 tons, and in 1831, 1062 tons. It sells in England from £15 to £25 per ton. This plant is well adapted to our climate It has flourished at Mr. Noisett's, in the vicinity of this city for several years, in the open air. It is beginning to be a profitable culture in the South of France. In a letter from Mr. Nuttall to a friend of ours, he earnestly recommends the introduction of this plant, and its cultivation in our rice-

fields that are adapted to dry culture. We are unable to state at present in what way a sufficient number of plants could be procured to make an experiment.

GREEN AND BOHEA TEAS, *(Camellia virides et Bohea.)*

Whether the tea-plant can, with our present high price of labour, be cultivated with profit at the present day, is very doubtful, but we know not what changes time may produce, and our posterity may yet be compelled to make the experiment. Certain it is the tea-plant grows readily and bears seed in our open grounds, as may be easily ascertained by examining the plants in Mr. Noisett's garden, which have for years withstood all injury from wet, drought, or frosts. The young plants raised from seeds are still better adapted to our climate, as they will probably produce their seeds in autumn, instead of the winter, as is the case with the parent trees.

SWEET SCENTED OLIVE, *(Olea Fragrans.)*

This is a flourishing shrub, which we introduce here in consequence of its being confidently asserted that the finest teas of the Chinese are scented with the fragrant blossoms of this shrub. It is cultivated with some difficulty by cuttings and layers, and grows in similar situations with the tea-plant.

THE JUJUBE TREE, *(Zizyphus jujuba.)*

This is a very pretty shrub, with a bright glaucous leaf, bearing a dark scarlet fruit, from which is prepared the delicious paste that is sold under the name of jujub. We have seen it growing in the gardens of Mr. Roux, of this city, and of Mr. Nicholson, and the late Dr. Gleize, and in every situation the plants were healthy and bore fruit abnndantly; they can be multiplied from seed cuttings and layers.

ENGLISH WALNUT, *(Carya regia Juglans regia Ling.)*

We esteem this the most valuable of all the nut tribe. When fresh the fruit is very palatable. In many parts of Europe, a fine oil is extracted from the nuts, and in Germany they are broken up to fatten poultry, particularly turkies, to the flesh of which epicures state that they impart a peculiarly fine flavour. This tree succeeds well, we believe, in the neighbourhoods of Philadelphia and Balti-

more, as we have seen the fruit in its green state for sale in their markets; it was purchased for the purpose of making pickles. This tree would, we think, succeed in our climate. The few young trees we have seen here, appeared to be doing well. A few trees planted on our farms would take up but little room, would yield an agreeable shade, and might be beneficial to our posterity if not to ourselves.

PISTACHIA TREE, *(Pistacia officinarum.)*

Michaux, in his valuable work on the forest trees of America, recommends the cultivation of this tree, which he thinks is adapted to our Southern climate. It is a native of Asia Minor; the nuts (which it produces abundantly) are valued as more agreeable in flavour than the hazel nut or almond. We have some doubts whether it will succeed in our climate, as it has heretofore been cultivated only in dry calcarous stony grounds, and shuns a sandy and humid soil; still it would be well to make the experiment, and as it is more hardy than the orange tree, attempts might be made at cultivating it on the dry ridges of our middle country. It is a dioecious tree, and requires two trees to be planted near each other in order to bring fruit in perfection; the usual practice is to plant one male to four or five female trees.

STONE PINE, *(Pinus pinea.)*

This is a tree from the neighbourhood of the Mediterranean, bearing a fruit, which we are informed, is used as a desert on the tables of the inhabitants of those countries. We have seen this fruit in the market of this city, and we confess, it appeared to us as rather inferior; but the cones had evidently been picked in an unripe state, and it is probable that the fruit fresh from the tree may be of a better flavour. We have seen a few small trees cultivated by individuals of this city, but have not learnt whether they are still in existence. This pine is best cultivated from seed.

PECAN NUT TREE, *(Carya olivaeformis.)*

This, though a native tree, is too much neglected. It is well adapted to our climate, and wherever we have met with it in the vicinity of Charleston, it yielded an abundance of fine flavoured nuts. It requires about fif-

teen year's growth before it bears much fruit, and from this circumstance, the remote prospect of advantage. the tree is little cultivated. It may, however, be engrafted on the common hickory, and would bear the second year following. The nuts of the pecan brought to this market from New-Orleans, we believe, sell at $2 per bushel, and thus we may derive some profit with scarcely any labour.

Ogechee Lime, *(Nissa capitata.)*

This is a small tree from twenty to twenty-five feet in height, and is a native of Georgia. The inhabitants of Savannah are in the habit of making palatable preserves from the fruit of this tree. It succeeds well in our climate—a tree in the garden of Mr. Noisette, has for several years past annually borne an abundance of fruit.

Myrtle Leaved Orange, *(Citrus myrtifolia.)*

This is a more hardy tree than the sour orange, and does not sustain injury from our coldest winters. From its fruit are made the best preserves that are brought to our tables. The tree is multiplied by seeds and inoculation. There is a delicious fruit of the lemon kind, called the sweet lemon, which is cultivated in Italy, and grows in the open gardens about Rome, that might also be adapted to our climate.

Salisburia, *(Salisburia adiantifolia.)*

This is a tree of China, and has never produced fruit either in Europe or America. Dr. Abel says, he saw the fruit exposed for sale in the China markets—this fruit is yellow when ripe, with a fleshy juicy white pulp, adhereing closely to the drupe, which is like that of an apricot. The kernel is white, rather firm, sweet, with a mixture of austerity or bitterness when raw, but agreeable when roasted. This tree with its fan-shaped leaves is very beautiful. The only specimen we have seen in this country, is a large and elegant one now growing at the Belvidere farm near this city. It can be easily propagated from cuttings.

Teak Tree, *(Tectona grandis.)*

This is the tree used in the East-Indies for ship-building, and is said to be equal to our live-oak, and of quicker growth. As it grows not only in the low-grounds, but on the moun-

tains of the East, subject to frost, it may be well adapted to our climate. Seeds of the Teak-tree, which we have recently received through the politeness of Dr. Harlan, of Philadelphia, are left at the office of the publisher of this Journal for distribution.

Camphor Tree, *(Laurus camphora.)*

This tree from which the celebrated drug of camphor is made, we have seen growing in the open ground in the garden of the late Mr. Young, of Savannah. Fine plants of this species are growing in the gardens of Mr. Bennett and Mr. Nicholson, of this city.

The Hazel Nut, or Filbert, *(Corylus avellana.)*

Probably the species of Hazel-nut cultivated in Europe, as well as those which are natives of the Northern States of America, might not be adapted to our warm climate. We have, however, recently seen what appeared to us one of the varieties of the European Hazel-nut, in full fruit on the farm of Mr. Poinsett, in the neighbourhood of this city. There are, however, two other species from the South of Europe, the *C. tubelosa* and the *C. colurna*, that might be well adapted to our climate.

Sago Plant, (*Cycas revoluta.*)

The nutricious food called sago, particularly intended for invalids, is made of this plant. It is of slow growth, and is multiplied from bulbs thrown out from the parent stem—it is a pretty hardy plant; is, however, occasionally injured, but seldom destroyed by our cold weather. It is growing in several gardens of this city, and in great perfection in that of Mrs. Davis of Canonsborough, but we have not heard that any attempts had been made in manufacturing the Sago.

Arrow Root, *(Marantha augustifolia.)*

We cultivated this plant for a succession of years, and manufactured in our family a sufficient quantity, not only for our own consumption, but were enabled occasionally to furnish a supply to others. With a little care the roots can be preserved through the winter, in dry sand. They require to be planted in hills raised considerably higher than corn.

Cassava, *(Jatropha manihot.)*

This plant which produces the valuable farinaceous substance called Cassava, is of a warmer climate than ours, still it is cultivated in parts of South-America, subject to considerable frost; its roots arrive at perfection in eight months. In preparing the roots for food, they are washed, scraped, and grated to a pulp. This pulp is then pressed, and when dred, is a flour resembling starch, and is fit for use. It is said to thrive in any soil or situation. Plants or roots can be obtained from the Havana.

Assafœtida Plant, *(Ferula persica.)*

This plant produces the drug used in our shops—it is also said to be a wholesome and palatable vegetable. We are not aware that it has been introduced into this country. It is, however, considered a valuable article in the East. The drug is the inspissated juice of the root, which being bared of earth and cut across at the top, it oozes out, and, when dry, is scraped off, as opium is from the capsule of the poppy. The plant grows three feet high, with yellow flowers, and hemlock like leaves and habit.

The Cork Oak, *(Quercus suber.)*

Should we be successful in raising wine in this country, it will be very important that we cultivate the tree from which cork is made. The cork is produced from the outter bark of the tree which sustains no injury from its removal. Young plants of this species are now growing in the garden of Mr. Nicholson of this city. Should not our Agricultural and Horticultural Societies unite and send to the South of France for a barrel or two of the acorns of this tree for distribution?

Paper Mulberry Tree, (*Brousonnetia papyrifera.*)

This a dioecious tree—the male only having been known here till very recently. The female tree has been introduced only within a few years past. The fruit is not very palatable, being of an insiped sweet taste, but poultry are very fond of it, and the tree in full fruit has a very pretty appearance, and would be preferable as an ornamental shade tree, to the male tree, which as yet is the only one that has made its appearance in the streets of our city. The tree multiplies so rapidly from the roots as to have in some places become a nuisance.

Soap Berry Tree, (*Sapindus Saponaria.*)

This tree is a native of the sea-coast of Georgia, and succeeds well with us. It bears a great abundance of berries which are used for the purpose of washing woollens, and may yet be found of some value in manufactures. A tree or two planted in the neighbourhood of our dwellings, may not only prove useful for the above purpose, but will afford a pleasant shade.

New-Zealand Spinach, (*Tetragonia expansa.*)

This species of Spinach has, we believe, fallen into disuse. It is, perhaps, not equal to the other kinds. We have found it, however, admirable food for poultry and hogs, and when boiled and mixed with rice-flour, is greedily eaten by milch cows, and as it grows very luxuriantly —withstands all drought, and will even flourish when occasionally overflowed by salt-water; its culture should not be abandoned.

Fig, (*Ficus carica.*)

All the varieties of the Fig produce fruit in perfection with us, except the Smyrna fig, which bears but one crop a year, and puts forth its fruit so early in the season, that it is invariably destroyed by our late frosts. There are several very fine varieties of this fruit cultivated in France and in Mexico, that have never been introduced here; and as cuttings may be so easily put up in mattings and sent to any distance, it would be advisable to introduce all the choice varieties that can be obtained. The fig is one of our most wholesome and pleasant fruits, and bears abundantly, sometimes even three crops a year.

Pear, (*Pyrus communis.*)

Our soil and climate are well adapted to the growth of this delicious fruit. That our markets are not more abundantly supplied with pears, is owing to our negligence in not planting the trees. We have seen on the plantations of Mr. Magwood, Mr. Horlbeck, and in the gardens of Mr. Mey and Mr. Michel, in this city, Pears scarcely inferior in quality, and the trees bearing as abundantly as in any part of the United States. As this is a tree that arrives at a considerable age before it begins to bear, it would be advisable to hasten its productiveness by engrafting, which causes the pear-tree to commence bearing nearly

as early as the apple. The latter tree does not, in general bear good fruit with us, yet we would like to see an experiment made on a delicious apple growing in the South of Europe, called the *Mala cara*. It is too delicate for our Northern climates, and may, therefore, be best adapted to this climate.

The Cherimoyer, (*Annona cherimolia.*)

Travellers who have visited the table lands of Mexico, speak in raptures of the fruit produced by the tree called *Cherimoyer*—this fruit is contained in a conical scaly covering, resembling the pine apple—it is eaten with a spoon, is of a very delicious taste, which is said to bear a great resemblance to the taste of strawberries and cream. We have conversed with Mr. Poinsett, our former Minister to Mexico, on the subject of this fruit, and he considers it the finest fruit which that country, (so rich in fruit,) produces. The table land of Mexico, where this fruit grows, is subject to occasional severe frost, and the trees might stand the climate of our maritime districts. Although we are anxious to see attempts made to introduce this tree, together with others, from the table lands of Mexico, we have some fears that our climate may prove too cold for their cultivation in the open ground—as the few plants from that part of Mexico which we have seen cultivated here, required the protection of the green-house. Seeds, and perhaps, young plants, might be obtained from Tampico or Vera Cruz, with which we have an occasional intercourse.

The Custard Apple Tree Papaw, (*Asimina triloba.*)

The fruit of this tree is far inferior to the last, though the genus is nearly allied to it. It is a native of our mountains—is now bearing in perfection at the farm of Col. Markley, on Charleston Neck, as also in the garden of Mr. Noisett. It bears a strong resemblance to the banana. The fruit is considered by some as pleasant and wholesome—the tree does not take up much room, and is easily cultivated from suckers that spring up abundantly from the roots.

We pass over several species of the *Arbutus, mespilus* and *vacinium*, which might easily be introduced and cultivated here, and proceed to notice

THE BUFFALOE BERRY TREE, *(Shepherdia argentea.)*

This is one of the additions made to our fruits by those indefatigable explorers of our Western wilds, Lewis and Clarke. They spoke in high terms of the delightful flavour of the Buffaloe berry; but the world thought that many allowances ought to be made to men whose appetites had grown keen by much suffering, and they supposed that it might easily prove, that what had appeared delicious to men who spoke in raptures of horse and dog's flesh, might be but insipid food to those who had been accustomed to the taste of something better. This tree, however, bore fruit in the Northern States last year, which is described as fully equal to what it was at first represented. We are informed, that seeds and cuttings of this new genus of fruit tree may be obtained from Boston. We believe it is a native of the neighbourhood of the river Platte. It is dioecious.

We will not impose longer on the time of our readers, or take up room in this journal, which may be better occupied by the communications of others; we will simply allude to the culture of the white beet, from which the sugars consumed in France are now manufactured; and to the rape, poppy, castor-oil, benne, cotton-seed, &c. from which oil for the lamp may be prepared to great advantage; suffice it to say, that the ingenuity of the French has enabled them to supply that whole country with a cheap, but clear and transparent oil for lamps, from various kinds of seeds; and if the olive should be found unsuited to our climate, and the great Leviathan of the deep (that has for ages supplied us with oil) should be exterminated, we will still have a resource and an excellent substitute in some of the above. If our climate is not adapted to the culture of flax (*Linum usitatissimum*) we can cultivate a superior article in the New-Zealand flax; and if the apple, the cherry, the currant and gooseberry are unsuited to our country, we may, among all the fruits above enumerated, find some that are equal if not superior.

Art. LXII.—*Destroying Trees in Streets; by* B.

Mr. Editor,—However much King-street may be improved in appearance by the removal of the trees, which grew near the side-walks, there is good reason to doubt whether this policy should be extended. Vegetation is the only known means for destroying carbonic acid gas, and this gas is produced in immense quantities whenever the population is dense. It is deleterious, and nature restores the purity of the air which it injures, by means of vegetation.

Sir Humphrey Davy says, "carbonic acid is formed in a variety of processes of fermentation and combustion, and in the respiration of animals, and as yet no other process is known in nature by which it can be consumed, except vegetation."

On philosophical principles, it is very probable, the numerous trees and gardens in Charleston, have contributed very much to the purity of its air, and the health of its inhabitants. On the same principles, it is probable, that the destruction of trees, &c. would be attended when an opposite consequence. B.

Art. LXIII.—*On Rice Threshers; by* W.

Mr. Editor,—The absence of a spirit of enterprize among our planters, is deeply to be regretted. Absorbed by the cares and pursuits of a country life, they seldom allow their minds to reach farther than its drudgery, and become bound by the webs of prejudice and timidity, always attendant on contracted habits. When the cultivation of a few paternal acres, fill the measure of ambition, we may scarcely in that quarter look for improvement, and allow the possessor to toil on in the weary path of sameness and antiquity. But there are men of education among plan-

ters intended for something more, who only require to be roused from their apathy, to seize advantages held out to them. Without neglecting their profession, they may avail themselves of facilities afforded by machinery for the speedy preparation of a crop for market, and gain other valuable results in an economy of labour, and the application of that saved towards a higher cultivation of the soil. Mechanics have shown an example in availing themselves of the resources of art to diminish labour, well worthy of imitation; by machinery, the founder blows his bellows, the bricklayer elevates his material, the carpenter prepares his boards, the cooper his barrels, the navigator skims the ocean, the traveller the land, and various pursuits of life are accelerated by this assistance. And the planter should not continue supine, but avail himself of the same means. With few inconsiderable exceptions, the rice-mill forms the principal labour-saving machine we can boast of, and cotton planters are content to canter on with the old foot-gin. In preparing rice for mill, the toilsome and protracted operation of threshing by hand is still pursued, while the practicability of getting it out by machinery has been fully demonstrated. My intention now is to throw out a few remarks on this subject, which I hope will gain the consideration of the public.

Several attempts have been made by rice-planters, to obtain their now greatest desideratum, a successful rice-thresher; but incompetency on the part of mechanics employed, has produced failures, attended by heavy expense and consequent disgust of their employers. Competent agents are now to be obtained, who have surmounted the most formidable difficulties, and will ensure success. The first requisite for success is a proper impelling power. The cheapest, apparently, and most convenient impellant, is animal power, but its insufficiency has produced most of the failures we deplore, as the motion is jarring to machinery, irregular and therefore destructive of all calculation. The only efficient agents are water and steam. These produce a regular motion absolutely necessary to threshers, as their speed must be uniform, and maintained at the rate of 700 revolutions in a minute. The most simple and practical threshers which have come under my observations, were recently introduced into the State. A few winters since, a thresher was

brought to Charleston by a Mr. Emmans, and tried by several planters. It consisted of five or six beaters (filled with teeth at graduated distances) attached to a revolving cylinder, these beaters in their revolution struck against a fixed piece of wood armed with iron and projecting teeth, and thus combed off the rice. The iron teeth of the beaters, and a joint in the iron which attached them to the cylinder, and gave a centrifugal force, constituted its only variation from the old Scotch thresher. Animal power was in all instances, except one, applied to this machine, and entirely failed. One trial was made by the application of steam power, and with some slight improvement to the machine, proved completely successful, this thresher disengages 600 bushels of rice per day from the straw.

Another thresher, on pretty much the same principle as Emmans', is Ludlow's, sent to Charleston about the same time. This thresher consists of a number of steel blades, two and a half inches long, of a particular shape, firmly driven on a spiral line into a wooden cylinder, this cylinder revolves in a concave bed, also filled with the same kind of knives, among which those of the cylinder pass, not allowing space for the rice to escape, which is thus torn off. Propelled by steam, this machine has for three years given great satisfaction to the proprietor, and threshed an equal quantity of rice with Emmans'. The straw from Emmans' thresher is scarcely injured, but by this other considerably cut. One of Ludlow's threshers was attempted to be worked by four mules, and under favourable circumstances did not thresh more than 150 bushels average per day; a great deal of foot-stalk was attached to the threshed rice from want of accelerated motion. Of the two machines to which I have alluded, I think Ludlow's the most durable and efficient, but would suggest as an improvement a cast iron cylinder in place of wood, in which the knives when worn or broken, could be easily replaced and secured by a tap. Close observation of these threshers have given me the impression, that simple beaters attached to a cylinder with an accelerated motion, would be completely successful in threshing rice.

The additions to a thresher for separating straw from rice, are very simple. The rice after passing through the thresher, falls by its gravity into a hopper, which conducts

to a fan, from which it descends thoroughly winnowed to the floor. The straw is cast from the thresher, and caught by two revolving rakes, is thoroughly shaken and thrown to an inclined slatting which conducts to a door, whence it is taken away.

The cost of one of Ludlow's threshers, is about $150, Emmans far more expensive; a double rake is $60, a fan $90, and the expense of machinery and workmanship in attaching these to a moving power, from $700 to $800. Where a water-mill is already established, by attaching a coupling shaft to the wheel, several of these machines may easily be propelled, or where this facility is not possessed, but a tolerable sight for a moderate water-power offered, the construction of a race-way and wheel would be fully authorized by the great advantages derivable. A short calculation will demonstrate this fact. Able hands do not thresh more than twelve bushels of rice per day on an average (which then is to be carried to the winnowing house, winnowed, and thence carried to the barn.) By steam-power, 600 bushels of rice can be threshed, and by the same process winnowed, per day, equal to forty-two hand's work. Another advantage is, that feeble hands and children can perform this work, leaving the effective force for improvements, or to prepare for another crop.

A general use of threshing machines is greatly to be desired. Planters, who have been successful in establishing them (of whom I know there are several) would confer a benefit on the community, by imparting their information and experience on the subject, and those possessed of capital, evince their patriotism, besides feeling it a duty to aid in perfecting such laudable attempts to advance the welfare of individuals and the State. Men of limited means might then avail themselves of such efforts, without incurring the expense of experiment or absolute loss. The manual labour of the country would be greatly extended, the products increased, the health and comforts of our negroes improved, their labour materially alleviated, and the prosperity of the planter incalculably advanced.

W.

Art. LXIV.—*The Locust; by the* Editor.

Much has been said and published in the news-papers of the Northern and Western States during the last summer, of the Locusts, which were making their appearance in great numbers—and which were supposed to arrive at regular intervals of seventeen years; and great apprehensions were entertained of the evils which they were to occasion. By some, it was thought, that like the locusts of Egypt, they would devour the corn and vegetation of all kinds, and that famine and pestilence were here as well as in the East, to follow in their train. Some even published that they were very venemous, and that several individuals had been stung and poisoned by them. The season has passed over, and we have not heard further of the injuries they have done, either to vegetation, to man, or beast.

It is time that the public mind should be freed from these ideal apprehensions and superstitious fears, and that the American farmer should abandon these vulgar errors. As we have seen no refutation of these absurdities, we have thought it might not be amiss, in a journal like ours, which professes to treat of all subjects connected with the planter's and farmer's life, with the causes of his prosperity, and the enemies he has to dread, to devote a short essay on this much abused insect, usually called the locust.

We have no insect in America of the species called locusts in the East, which are so destructive to vegetation. The *Gryllus mygratorius*, the devastator of the fields of Africa, is exclusively confined to the Eastern continent. It is a true grasshopper, and bears no resemblance to the insect which we call locust in America. It possesses great strength of wing and facilities of migration, above all others of the species. This formidable locust, (said to be a native of Tartary) is of a brownish colour, varied with pale red or flesh colour, with mandibles and eyes obscurely blue. These insects have occasionally taken their flight in immense swarms from the Eastern regions into the West, flying with such a sound, that they have been mistaken for flocks of birds—they devoured all vegetation, not sparing even the bark of trees, and the thatch of houses.

They destroyed the corn so rapidly, that 140 acres of it were devoured in a snigle day. At different periods Poland, Russia, Germany, France, Italy, and even England and Wales, were devastated by this noxious insect. But our own country has ever been free from its ravages, and as there is a wide sea between us and the Eastern continent, which it has not strength of wing to pass; (it being only able to fly forty miles per day, and is obliged to rest by night) we have every reason to believe, that we will never be visited by this destroyer of the hopes of the husbandman.

The insect of America, which in the South, as well as the North, is called locust, is of a very different genus, and instead of possessing a capacious mouth and formidable jaws, like those of the grasshopper family, is wholly unable to eat, except by suction, and is one of the most harmless of all our American insects. We did, indeed, read in Mrs. Trollop's gossiping book of travels, that the continual singing of this hemipterous insect often kept her from sleeping, but this, we think, is all the harm it has done, and as a set off, we might add, that whilst its monotenous song has kept some sensitive persons awake, it has contributed to lull others to rest.

The genus *Cicada*, which is improperly called the locust in this country, is a very extensive family, formerly numbering more than two hundred species. It has since been subdivided by entomologists, but even under its present restrictions, is still very large. We have several species in America, and four, at least, in the maritime districts of South-Carolina.

There is a small species in this country, whose habits are somewhat peculiar, resembling in this respect the Cuckoo Spit Cicada, (*Cicada spumaria*) of Europe. Its larva is constantly enveloped in a mass of white froth, adhering to the leaves and stems of vegetables. In Carolina, this species is commonly found in the clustered leaves of the loblolly pine, (*Pinus taeda.*) The insect from the moment it is excluded from the egg, sucks the juices of the stem on which it resides—here it is continually discharging a glutinous substance in the shape of minute bubbles, and by continuing this operation, completely covers itself with a large mass of froth which is sometimes so overcharged with moisture, that pendulous drops may

be seen hanging down from the mass above. Here the larva remains till it is to undergo its complete change, when the froth forms a kind of canopy over it; the skin of the larva is gradually thrown off, and the animal comes forth with wings capable of flight, and with a song, which Anacreon considered musical, and to which, or a closely allied species, he dedicated one of his odes, the two last verses of which are thus translated—

> "Thy cheerful note in wood and vale,
> Fills every heart with glee,
> And summer smiles in double charms,
> While thus proclaimed by thee;
> Like gods can'st thou the nectar sip,
> A lively chirping elf,
> From labour free and free from care,
> A little god thyself"

The species of *Cicada* that is in America, usually called the locust, is about an inch long, and is known by entomologists as the *Cicada septemdecim*. The specific name being derived from an idea, that it remains in the earth seventeen years before it takes wing. It is produced from eggs deposited in the bark of dead twigs of trees, and sometimes near the surface of the earth; when the young are excluded, they penetrate into the earth, where they grow and experience their metamorphosis. The Greeks looked on the pupæ or larva of some species of *Cicada*, as good food which they called *Tettigonetra*. The imperfect insect remains in the earth, according to most entomologists, seventeen years. We have it not in our power positively to deny this, yet, we think, the period will be found much less, probably only two years. We have noticed this insect every year in the South, for the last twenty years; it was more numerous in the summer of 1833 than in that of 1834; and although we cannot argue from the circumstance of its regular annual appearance, that it does not remain many years in the earth previous to its metamorphosis, yet the fact should be proved by the positive experiments of entomologists before we are bound to believe it. When about to undergo its final change, it crawls out of the earth, fastens itself on any object, a tree or stick suited to its purpose; the shell opens on the back, and remains adhering to the wood, and the insect, escaped from its confinement, expands its wings to the sun, and in an hour mounts on airy wing, and commences its new existence

with a song. This music, for we suppose the *Cicada* considers it such (and who has not sometimes mistaken his vocation) proceeds from a pair of plaited concave membranes under each wing; these are thin, tight, and transparent; they are moved by powerful muscles, composed of numerous straight and parallel fibres. These muscles by their contracting and relaxing, act on the tymbals, alternately tightening and restoring them to their original state. Such is the origin of the sounds produced by the *Cicada*. The male only is capable of emiting this noise—the female is perfectly silent—hence the old witticism attributed to the sensualist Xenarchus, the Rhodian, who sung

> "Happy the Cicada's lives
> Since they all have voiceless wives."

We have only to remark that he must have either been very insensible or very unfortunate.

The existence of the *Cicada*, after it has assumed its winged state, is limited to a few weeks, at the longest; one which we secured at the moment it was excluded from the shell, died on the eighth day. It is supposed by some entomologists, that like the Bombyx, which produces the silk-worm, it does not eat any thing in this stage of its existence. On dissecting several, however, we have found their intestines filled with the juices of the trees on which they were most fond of alighting—we noticed particularly those of the Pride of India, (*Melia azadarach*) and two species of pine, (*Pinus taeda* and *palustris*) With their sharp proboscis they perforate the bark and receive nourishment by suction. It is, we have reason to believe, a harmless insect—it does no injury to the fields or trees of the farmer, and the accounts published of their having poisoned individuals, are not sufficiently authenticated.

Art. LXV.—*Effect of Marsh-Mud on Vegetation; by the* Editor.

A few days before the recent gale in August, we had about an inch thick of marsh-mud, (which had been thrown on the high ground, two months previous,) placed between five or six of the rows of an okra bed; shortly after the gale, we found the leaves dropping from every part of the okra, where no marsh-mud had been placed, and nothing but the decaying stalks are now remaining. The okra had arrived at its maturity, and agreeable to the laws of nature, is decaying. But those parts where the marsh-mud had been spread still remained in full and vigorous growth, and produce fruit as usual. Will some of the numerous readers of the *Agriculturist*, give an explanation of the causes of the above? Was there some property in the salt earth that produced it? Or may it have been produced by the roots having received an extra covering? May not the above fact be usefully applied to agriculture? The okra is verp nearly allied to cotton, and was even placed under the same genus. May not the cotton plant be preserved from dropping its bolls at the particular season, by the timely application of marsh-mud?

Art. LXVI.—*Raising Ducks and Turkies; by the* Editor.

In the *Agriculturist* of last year, appeared two articles, one on the best mode of raising Ducks, and the other, on Turkies. Two seasons have since passed away, and the writer of this has been enabled to test the efficacy of those directions, and in every instance that has come under his knowledge, they have been attended with perfect success. The directions for raising ducks, were to feed them on animal food and keep them dry. Individuals who have

adopted this plan, have sent to our markets from 500 to 700 ducks of the finest kinds, and they have had no diseases among them, and found no difficulty in raising them.

Two or three individuals who tried the experiment of driving their turkies, when young, to a distance from the house, where the greatest number of insects were to be found, and feeding and housing them in the manner directed in the Agriculturist, have stated, that they have raised from 100 to 300 turkies, and have pronounced it to be a method, which of all others, they believed best calculated to be attended with success.

Art. LXVII.—*A Simple Remedy for the Croup.*

Mr. Editor,—This dangerous disorder which has proved fatal to children, in almost every climate and situation, and which is the dread of many an anxious parent, may be subdued by the timely application of a remedy, which is not only simple, but easily obtained. As soon as the symptoms of croup appear, Scotch snuff must be applied to the throat of the child, either in the form of a plaster, or by rubbing it on the throat and chest; this can easily be done by mixing the snuff with any fat or oily substance, which makes it adhere to the skin. If applied too low on the chest, it causes vomiting, and as the application to the throat appears to occasion nausea sufficient to throw out a moisture on the skin, it is supposed that this alone has a tendency to ameliorate the disease. The writer of this has seen the most beneficial results from the timely application of this simple remedy, and but recently witnessed its efficacy in the case of a child five years old, subject to this alarming disease from its infancy. The family were called up at midnight, and found the child labouring under all the distressing symptoms of croup, accompanied by considerable fever. A plaster of Scotch snuff was imme-

diately prepared, by mixing it with some pomatum which was at hand, and spreading it on a bit of cloth cut to extend partly round the throat, and a little over the chest. This was immediately applied, but as the parents were too anxious to rely on this remedy alone, they sent for a physician, but by the time he arrived, the disease was greatly ameliorated, and the difficulty of breathing having ceased, and a considerable moisture appearing on the skin, and the cough and restlessness also greatly relieved. In this stage of the disease, the physician recommended the feet to be bathed in warm water, and a dose of castor oil to be administered, the child was then put to bed, became quite composed, and by the morning all symptoms of croup had disappeared.

As there are many persons so situated, particularly those residing in the country, who cannot easily obtain medical aid in this dangerous disorder, and if they do obtain it, it may not be until several hours after the child has been attacked by the disease, we would therefore, recommend, to such, that as soon as the first symptoms of croup appear, the Scotch snuff be immediately applied as above directed, as it will not interfere with any remedy that a physician may afterwards apply, and will in all probability subdue the disease, or alleviate it so much as to require very little else to remove it entirely. The snuff appears to act as an anodyne and sudorific, and the difficulty of breathing is soon relieved by it, the whole system composed, and the patient generally falls into a comfortable sleep, from which it awakes relieved from all the distressing symptoms attendant on this fatal disease.

Art. LXVIII.—*Wasps injurious to Fruit.*

Mr. Editor,—Not long since, one of my workmen was severly stung by a wasp of the smaller class; on looking into one of my books for a remedy, (which was hartshorn on the wound) I found it mentioned that wasps are very

injurious to all kinds of fruits, especially peaches, apricots, and grapes. One part of my garden had been for some years neglected; and the wasps had established similar colonies in it, which I was induced to leave undisturbed, from the amusement I found in observing their labours. During this time I lost my fruit altogether, plums as well as other kinds; but never thought of ascribing the loss to these depredators. Perhaps this notice may be of advantage to others, who have tolerated this insect.

ART. LXIX.—*Free Schools; by* A FARMER.

Mr. Editor,—Among the great improvement of the present times, the facilities given to modes of education, may be regarded as of the greatest importance; and none of these is more deserving of attention, than the plans by which the children of the poor are made to defray the expenses of their tuition, by their industry, either wholly or in a great part. This has been in an especial manner successful, in the institution of Mr. Fellenberg, at Hotwyl, in Switzerland; and as one of the leading features of it, is to prepare the pupils to become tutors, and in turn to disseminate their knowledge in the same economical manner, we may look for the extensive diffusion of the system throughout Europe, and it is to be hoped in time, throughout this country, which is peculiarly well adapted for the reception of it. General Greene, at Washington (City,) is about to make it subservient to the promotion of cheap printing, and proposes to form a school of 200 boys, who are to support themselves by their labour, in that business, while at the same time they are to be educated and taught it as a trade. In the same way it may be applied to every other handicraft trade; but it is as relates to agriculture, that it is of most importance, in the Southern section of this Union, where that interest is so exclusively pursued.

Our Free School institutions which have done so much good, have yet been faulty in some important respects. It

has been objected to them, that where the population is thin and scattered, the advantages cannot be participated in, by such as are unable to board their children near them—the distance precludes it—and in consequence, in districts where education is most needed, it is least imparted. Now, if the free-schools in the country districts were located on farms (and the cheapness of land offers every facility for this purpose) it would necessarily be a part of the plan, to have the children lodged and boarded at the school, that the division of their time, between healthful labour and study might be made. The habits of industry obtained at such a seminary, both from precept and example, would not be one of the least of its benefits; but the knowledge of a business, by which a living may be procured, at the same time, that the rudiments of learning are obtained, is an inestimable advantage; any system of education for those who are destined to labour, that stops short of this object, may be considered defective. Reading and writing are but preliminary steps to the formation of youths, for the business of life, and are imperfect without the latter, which is indispensable for their welfare, and to secure them from the evils of idleness and vice.

This outline may be regarded but as hints to introduce the subject to the consideration of the public. At a future time the details may be entered upon; and, indeed, by referring to the accounts of the Hofwyl school, which are to be found in the *American Farmer*, and other recent publications, every reflecting mind will be able to complete the system, which is as simple as it is useful.

A FARMER.

PART II.

SELECTIONS.

ART. XCVI.—*Vegetable Life—A remarkable Law; its influence on several operations in Horticulture and Agriculture; by a* GHENT FARMER.

[FROM THE COLUMBIA SENTINEL.]

It is well known that, in the animal kingdom, all those circumstances which accelerate the growth of the body, exercise a proportional influence on the productive system, so that the period of puberty is uniformly earlier in domesticated than in wild animals, and in those which are fed plentifully with food than in those which are scantily supplied.

These effects of an abundant supply of food are exhibited throughout the whole range of the animal kingdom, as far as observation has hitherto extended. The very reverse of this arrangement seems to prevail in the vegetable kingdom. Where plants are furnished with an abundant supply of food, their reproductive energies develope themselves slowly, and flowers and fruit or seeds are later in appearing. On the other hand, when the supply of nourishment is scanty—when the plant is, as it were, starved, and when death is threatened, the reproductive energies act with readiness, flowers and seeds are produced, and the extinction of the race guarded against; or, in other words, the scantier supply of nourishment, the earlier will a plant propagate its kind.

Let us now attend to some of the exhibitions of this law, and their application to useful purposes.

In reference to seeds, it has been long known to farmers and gardeners, that those which are new or fresh produce plants with more luxuriant foliage, and less inclined to run into flower and fruit, than such as have been kept for some time, and are partially spoiled. In the first case the supply of nourishment during the early stages of its growth being in abundance, the plant enlarges rapidly in size, while in the latter case the scanty supply causes the plant, in obedience to the law which we have announced, to run more directly to flower and seed. These cir-

cumstances are carefully considered in the culture of cucumbers and melons, the seeds of which are seldom employed until several years old. Such, indeed, is the attention paid to this condition, that we find in books on horticulture, the following grave recommendation: "if new seeds only can be had, it should lie a week or two in a suitable place, to dry away some of the watery parts." A similar attention to this law, in reference to the seeds of other vegetables, is productive of evil benefit. Peas for example, are well known as apt to run to straw, where the ground is rich or moist. The employment of old seed is the only suitable remedy.

In some newly enclosed lands, the evil of excessive luxuriance is frequently experienced to an inconvenient degree during two or three years. The straw is great in quantity, but the grain is always deficient. In vain is recourse had to early or thin sowing, while the use of old seed is neglected. We need not here guard against misconception, by stating in detail, that where seeds do not vegetate, or give origin to a weak, sickly, useless plant.

Where luxuriance of leaf and great size are the object aimed at in the cultivation of garden or farm produce, the influence we have been considering must be guarded against as an evil; especially, for example, with turnips and cabbage; old seeds producing plants too disposed to run to flower.

Independently of the influence which this law exercises on the future plant, as the result of the condition of the seed, we have it in our power to witness its operation under other circumstances, in the growing plant itself. In the management of fruit trees, there are a variety of plans pursued, which, though obviously depending on this law of the vegetable kingdom, are frequently but imperfectly understood by the practical cultivator. The transplanting of fruit trees hastens the production of flower buds. A tree which for years has shown no tendency to produce flower buds, but which has been exclusively occupied in the extension of its roots and branches, will, upon being shifted from its place, soon exhibit symptoms of a change. The roots, by this process, have been in part injured, the supply of sap to the tree during the following season has in consequence become diminished, and the plant ceasing in a great measure to extend its size, hastens to propagate its kind by the production of flower buds, and the subsequent display of blossoms and fruit.

The diminished supply of sap, and the consequent hastening of the production of fruit buds, is accomplished by several other plans equally efficacious. When a rank growing fruit tree is engrafted on a slow growing stock, or, in other words, when a tree requiring much more sap is compelled to receive its supply through a tree having but a scanty supply, the engrafted branch will come much earlier into fruit than if it had been always sup-

plied with abundant nourishment. This method of accelerating the production of fruit, and termed dwarfing; is particularly serviceable in enabling the cultivator of new varieties to become early acquainted with their respective merits.

When fruit trees are prone to run to wood, gardeners are accustomed to lay bare a portion of their roots during winter. By this exposure many of the fibres are destroyed, and the vigour of all greatly diminished; so that the sap, during the following summer, is transmitted to the branches in less quantity, and the production of fruit buds is the consequence.

Fruit trees, luxuriant in leaves, but bad bearers, are sometimes forced into a productive state, by having portions of the bark removed with a knife, or wires twisted round the stem or branches. In this case the ascent of the sap is indirectly diminished, by the obstruction of the vessels containing the proper juices, the death of the plant, or a portion of it, is threatened, and the reproductive organs speedily exercise their functions.

In the cultivation of a farm, numerous examples are frequently occuring of the influence of this arrangement of the vegetable economy. The crops growing on the thinnest parts of the soil, where the nourishment is consequently in diminished quantity, are always the first to exhibit their flowers, and to be ready for the sickle. On ill managed farms the harvest is usually much earlier, (other things being equal,) than on those where the crops are under the influence of a better system. We have had an opportunity of witnessing the delay of harvest, upon the application of lime, for example, in consequence of this increased supply of nourishment producing luxuriance of growth rather than early flowering.

In the management of planting trees, the indications of this law may often prove of great value. Wherever we see a tree, in a very young state, exhibiting its flowers and producing fruit, we may anticipate its early decay. The premature formation of fruit buds is the consequence of a scanty supply of nourishment, arising, it may be, from the roots having been injured, but generally from the plant being placed in an unfavourable soil.

Fir trees readily indicate their disagreement with the soil by the production of cones, while yet young, and this early fructification is the almost sure forerunner of death.

The balsam fir, for example, which thrives well on a thin dry soil, begins in a few years to produce cones, then the bark appears covered with blisters, which, when opened, pour forth a limpid resin, and the tree, after languishing a short time, dies, when in the course of a dozen years, having attained the height of from ten to twenty feet.

In looking at those decorated villas, near a large town, which to the citizens appear so captivating, one may frequently disco-

ver the real character of the soil, by this premature flowering of the ornamental shrubbery.

Though plants differ from animals, in reference to this singular law, which we have here ventured to establish from an extensive induction of particulars, they agree, in other respects, in the influence which an abundant supply of nourishment exercises in the increase of the number and size of the progeny.

GHENT FARMER.

Art. XCVII.—*On Fattening Hogs.*

[FROM GOODSELL'S GENESEE FARMER.]

The flesh of hogs, forms an important item in our meat markets, and is considered as indispensable in the diet of families. Salted pork is more extensively used by farmers in this country than any other kind of meat. It is easily preserved, and will keep for a great length of time without any material deterioration. Hams and bacon are considered as a luxury in every country where they can be procured in perfection.

The manner of preparing the flesh of hogs varies in different countries, according to circumstances. Hogs fattened in forests which produce beach masts, or other food abounding in oil are not well calculated for mess pork, but hams and bacon from such hogs is more juicy and generally preferred to that prepared from hogs fattened upon Indian corn.

As the price of barreled pork like other articles in market, is subject to variations, it is not always a money making business to the farmer who feeds his hogs entirely upon corn.

To render the hogs fat enough for market at the least possible expense, should be the study of every economical farmer. To do this, hogs should be kept in a thriving condition through the summer, and as soon as the first of September, should be confined in pens and fed in such quantities as will induce them to remain at rest a greater part of the time. It is too often practised, to shut hogs in large fields after feeding season has commenced, where they exercise to that extent that much of the strength of the food is wasted by their rambling about.

It is not important that hogs should be fed in the early part of fattening with corn, as that will prove too expensive, but by bestowing a little labour upon their food, it may be prepared

from articles more perishable and less merchantable than Indian corn or barley.

Attached to or near every hog-pen, there should be prepared suitable apparatus for boiling or steaming food for them.

Farmers are not generally aware of the importance of boiling food for hogs. The nutritive properties of food are increased in some instances, from ten to twenty-five per cent. Two bushels of potatoes boiled are more valuable for feeding than three when fed raw. Potatoes, pumkins, squashes, and cabbages, when boiled and mixed, make excellent food for hogs, for the first three or four weeks, after which, those who wish for firm flesh, should begin to add a little corn meal.

Potatoes and pumkins when boiled with a small quantity of corn-meal, will answer well for three-fourths of the time allotted for fattening, after which soft corn, and after that corn-meal should be used.

Hogs fatten better, and it can be done at less cost, when feeding commences early than when it is deferred until October or November, besides the pork brought early to market usually commands a higher price.

Art. XCVIII.—*Wintering Sheep; by* A.

[FROM THE COLUMBIA SENTINEL.]

The season has arrived when sheep require a little of our time and attention. If these are now bestowed with subsequent ordinary care, sheep will pass through the winter with a trifling loss and much to our advantage. For want of attention at this season of the year, I have seen large flocks almost entirely destroyed, while their owners blamed their bad luck, but not their bad management. Sheep, to do well through the winter, must be in good condition when they begin it. If they are so, they pass through it without difficulty; but if they are poor at this season, good provender and a regular supply of it, will not insure them well through. To see then that our sheep have been well taken care of during the summer and fall, is an important step with the farmer, and which would be a great saving both in sheep and fodder. It is wrong to permit them to ramble over the fields later than about the first of December, because at that time there is little nutriment in the scanty herbag on which they feed, and the grass itself had better remain on the stem to pro-

tect it during the frost and winds of winter, and prepare it for an early and vigorous growth in the spring; besides, as the supply to the animal is small and innutritious, there is great danger that there will be a falling off in its flesh, which it can ill spare, and which to its subsequent existence it is so necessary it should retain.

I have frequently thought that an open December, which is so often wished for by the farmer to save his winter's supply of hay, is more prejudicial to his sheep, when they ramble over the fields, and to his own interest than he is generally aware of. It would certainly comport more with real economy, if he were to bring up his sheep by the 10th of December in winter quarters, even if the weather should remain warm and the ground uncovered. If they lose flesh at this time, they cannot regain it until spring, and the mortality which sometimes cost flocks of sheep, is imputable to this cause.

Sheep in winter should have sheds; the preservation of their health requires this indulgence, and nature prompts to it. Let me ask, if they have the choice, do they remain in the open air in a storm? No—they as instinctively run to their covering as a man does to his house, and if they do not require it quite as much, they appear as grateful for the shelter. For a flock of poor sheep a protection from the weather is all important. Those in good condition do not so much want it, as they have a better coat both of flesh and wool: but for them it is likewise useful, and a good farmer will not omit to give all the requisite shelter.

As soon as sheep are brought into the yard, the different kinds of lambs, ewes and wethers, should be carefully separated and kept during the winter apart. It is important that those in one yard should be nearly of a size as practicable; for by doing so, there are no strong ones among them, to drive the weaker from their provender. All will feed alike and do well. The flocks ought likewise to be as small as we can conveniently make them. It is an invariable rule that a small flock does much better than a large one, even if both, according to their number, are fed equally well. If the flocks in each yard can be reduced to between fifty and one hundred, so much the better; and it is a great desideratum to make them as few as fifty, if it can in any way be effected. It is likewise necessary to have a separate yard for old and poor sheep, and if there are any in the flock that do not subsequently do well, they should be removed into what is commonly called the hospital. These hospital sheep, by being few in number having a good warm shed, a sheaf of oats, or a few screenings from under the fanning mill, once a day, will soon begin to improve and do well. I have had my hospital sheep in a better condition with this care by spring than any other flock, and I must say that for the last three seasons, my sheep were in a better condition when I turned them out of my

yard in the spring, than when I put them in the beginning of winter.

Sheep ought to be rather sparingly than sumptuously fed, three times a day, out of racks to prevent them from running over and trampling on the hay. As soon as one is seen in any of the flocks to become thin, it ought to be removed at once into the hospital where it will be better fed. If you neglect to do this, soon will it be too late, and you will suffer loss; for a sheep once reduced to a certain point cannot be recovered. It is good to give them a feeding of straw or pine tops, if you please; it invigorates their health, and makes a change in their food. They ought all to be daily watered, and if your hay has not been salted, they ought to have a lick of salt occasionally. By adopting these rules, you will save all your sheep; or you will not lose more of them than you would of the same number of horses and cattle. They will have no disease among them. I have often thought of an observation made to me by an experienced wool-grower from whom I asked for information of the disease of sheep: he answered: "What have you to do with the diseases of sheep—take care of them and you will have no need for remedies." This observation struck me as strange at the time, but subsequent experience has amply confirmed it.

And now, what will the farmer gain by keeping his sheep well? In the first place, he will gain in his hay—a fat sheep will not eat as much as a poor one; he will save all his grain—sheep in good condition do not require any. In the next place, he will save all his sheep—he will have more and better lambs in the spring, and in consequence of it, he will have several ounces of wool more to each sheep; and what is better than all the rest, he will in the end save himself loss and anxiety. The saving will at least be from one-eighth to one-fourth of the value of his flock, and all this by attending to a necessary work in due season. A.

XCIX.—*Asparagus.—Asparagus officinalis.*

[FROM GOODSELL'S GENESEE FARMER.]

Asparagus is a genus of plants belonging to the sixth class and first order, of which there are twenty or more species. *A. officinalis* we believe is the only species which has been found profitable for garden culture. It is one of the oldest culinary

vegetables, having been cultivated, from the earliest period of gardening of which we have any particular account.

It is a perennial, found growing in sandy plains, in the North of Europe, and also in some of England, mostly upon the seashore, from which circumstance, the prejudice prevails that it is a marine plant and that salt applied to the beds is essential to its perfection.

Asparagus delights in a deep loose loam, and although found in dry sandy soils, yet in this climate we think it grows more thrifty in those rather moist than dry.

There has been a prejudice among farmers, that has retarded the cultivation of this useful plant, viz: that it could not be cultivated successfully, without a very considerable expense in preparing the beds for its reception. Formerly large pits were dug where it was intended to plant an asparagus bed, these were first paved with stone, and after that they were filled up with alternate layers of manure and loam, and some even supposed that bones, horns and brick bats, were necessary to complete the preparation. Common sense having dispelled many of these prejudices, asparagus is now cultivated upon the same principles as other plants, viz., by first making the ground rich and fine, and by careful dressing every year.

There are several varieties of the garden asparagus, as the large German, the red, and green topped, the battersea, Dutch, large reading, &c. The large German red, and green topped, are considered preferable.

Asparagus is propagated from seed, but is often increased by offsets from the old roots. Beds are thought to succeed best when set with young seedling plants, but the shoots will not be ready for use as soon as when set with offsets. The seed should be sown early in May, on a bed of light rich garden soil, early in May.

They may be sown quite thick, and allowed to grow in the bed one summer.

In the fall, or early in the spring a bed should be formed in some part of the garden where it is intended it shall remain, by trenching it eighteen inches deeps, and mixing with a suitable quantity of manure. Some prefer beds of only two and a half feet wide, calculated for two rows, set at eighteen inches distant; others form their beds four feet wide and set three rows at the same distance. But of whatever width the beds are made, the roots should be placed at least eighteen inches distant from each other, and should be placed nearly on a level with the walks between the beds. After the roots are placed upon the beds they should be covered over, about four inches deep with fine loose mould. The first year after setting asparagus should be allowed to grow without cutting, and in the fall after the frost has killed the tops they should be cut off, and the beds covered over three

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or four inches thick with stable manure. In the spring following, the manure should be made loose with a fork, but allowed to remain upon the bed, that the young shoots may be blanched, a greater length. The soil and litter should ever be kept six or eight inches thick over the crown of the roots. When good strong plants are set, they will produce shoots, fit for cutting, the second year after setting. The young shoots may be cut until the middle of June, after which they should be allowed to grow up for seed. In selecting plants for setting, none should be used which has not a good crown or bud, as the latteral roots or those destitute of buds will not sprout although they will remain in the ground many years without rotting.

In cutting asparagus, care should be taken not to injure the buds upon the crown which are close to the lower end of the shoot; for this purpose a knife with a narrow point should be used which should not be allowed to go as deep as the buds. When a bud of asparagus is well planted, it will continue to produce well for twelve or fifteen years, and when it is found that the shoots decrease in size, a new bed should be formed before the old one is taken up, that the family may be constantly supplied with this wholesome vegetable.

Art. C.—*Peas; by* Livingston.

[from goodsell's genesee farmer.]

Mr. Goodsell,—Although peas are not extensively cultivated, as a field crop, expressly for their own produce, in this section of our country, yet they are often sown as a fallow crop, and are thought by many, under certain circumstances, to be preferable to summer fallows in preparing lands for producing the staple of our country.

Within a few years, there has been a great change in the practice of preparing land for wheat, and now, unless where the land is foul, fallow crops, are preferred to summer fallows, as they are succeeded by equally fair crops, without exhausting the strength of the land as much in proportion to the produce.

For this purpose few summer crops, are better calculated than peas. From the great extent of surface presented by their leaves, they are supposed to receive a very great proportion of their substance, from the atmosphere at the same time, they protect

the surface from the direct influence of the sun, and retard the decomposition of vegetable matter, contained within the soil.

I believe all the peas at present cultivated with us, either as garden, or field crops, are varieties of the same species, and all capable of thriving under the same cultivation. In speaking of the different varieties, it is very common to hear people say such a variety, are *garden* peas, and others are *field* peas. The impression that there is a difference between garden and field varieties, often prevents people from sowing the more valuable varieties, because they have seen them growing in a garden, or have heard them called garden peas. It is true that some peas, as the grey rouncival, and knights tall marrows, with such a length of vine, that it is doubtful whether they should produce as well if not supported by poles, as in garden culture, but all those varieties with moderately long vines may be as well grown in the field as in the garden.

Whether peas are intended for garden or field culture they may be divided into two kinds, early and late. Early peas are small, and only prized for their precocity, as they are not as fine for eating as some of the larger and later varieties. Among the best of our early varieties, are the early Charlton or Frame peas, the Washington or June peas, with several others in which there is hardly difference enough to make them distict varieties; all names for a small round yellow variety which succeeds perfectly as well when sowed in the field at broadcast as when sowed in drills. There would be many things in favour of sowing these early varieties in fields instead of a small late pea which is often grown; they might be sown later in the season, and yet ripen soon enough to be harvested before the time for sowing wheat. Besides the varieties mentioned, there are several which are termed *dwarf* peas on account of their low growth. as their vines do not exceed one foot or eighteen inches in height, and when raised in the garden, they do not require bushing. Bishop's dwarf prolific, and the dwarf Spanish, are considered the best of the dwarf varieties. The more common varieties for field crops in this vicinity are marrowfat peas. They are double the size of the early or dwarf varieties, and grow to the height of four or five feet when supported with bushes or poles. Of these there are three varieties, two of yellow, one of which has a black eye, the other has not, and the other of a pale green colour. The two yellow varieties are considered as the most prolific, and are somewhat earlier than the green. They are also preferred for cooking when green, but the other surpasses them for cooking when dry, and is altogether preferred for splitting. The green peas are not as subject to be injured by bugs as the yellow when sown at the same time, but where the yellow varieties, sown

later so as to ripen at the same time with the green, they would also escape.

When peas are to be sown as a preparatory crop, the ground, if smooth, should be turned over as smooth as possible, and the seed covered with the harrow, or it may be rolled, after which a light plough may be used to cover the seed without disturbing the first furrows.

Those who wish to carry their peas to market must be particular as to the time of sowing, in order to keep them free from bugs. In this vicinity the yellow marrowfat peas should not be sown until the 10th of June, but the green may be sown by the middle of May without danger.

The quantity of seed sown upon an an acre, should be governed by the size of the pea, and the length of the vine—from two and a half, to three bushels per acre, of the marrowfat varieties, are commonly used. The quantity produced, is quite variable; in some instances forty bushels per acre have been harvested, while at others, not more than ten bushels have been produced.

The price of peas is also more variable than most kinds of produce, in Rochester market, varying from fifty cents to one dollar per bushel.

LIVINGSTON.

Art. CI.—*On Transplanting Trees.*

[FROM THE GENESEE FARMER.]

As the season for transplanting trees has now arrived, we would urge the propriety of having the holes dug both *large* and *deep*, filling in only the rich soil, and rejecting that which is poor and sterile. Five or six feet in diameter and eighteen inches or two feet in depth, are proper dimensions. In heavy loams where sand can be conveniently procured, it would be well to mix a liberal portion of it with the soil which is to be replaced in the hole, together with leaves and small decayed branches from the woods—for the trees will be more likely to grow in such a bed, and to bear better fruit when they have grown.

We have seen many a hole dug for this purpose, that was not more than a foot or fifteen inches in diameter; and if in taking up the trees, the roots were not sufficiently shortened by the spade, they were bent to force them into the hole. Sometimes an addi-

tion was made, of a little trench two inches wide, cut expressly to accommodate some refractory member. It was not expected that all the trees so transplanted would survive, or that the survivors would do more than live through the first season; and we think the expectation was without doubt the result of former experience.

It is known that the tree derives its sap and nourishment from the soil, through the medium of its *spongioles* which form the extremities of the fibrous roots. Of how much consequence must it be then to preserve the fibrous roots from excision when the tree is taken up, and also to preserve them from withering! Yet many who cultivate trees are not aware of its importance. We have seen loads of apple trees kept for many hours together in open wagons, exposed to the sun and wind, without any kind of covering whatever, till the *spongioles* were shriveled and dead. Indeed some planters calculate on the destruction of the fibrous roots, as a thing of course, and recommend that such excressences should be removed before the tree is reset.

The best or most convenient method of managing trees at such times, is not so well known as it should be. As soon as they are taken up, water them freely from a watering pot, and cover them with mats. When a suitable number is ready, tie them in small packages of six, eight, or ten, as the size or other circumstances may require, and work the roots in soft mud, previously prepared for the purpose, till every fibre is well coated. In this state, however, they are in danger of losing a part of their coat by daubing other things, and therefore as a remedy, dry earth made fine, is to be thrown on, till the mud is entirely enveloped. When the trees are soon to be set, wet grass will answer for packing round the root; but if the distance is great, and the time of their arrival uncertain, they should be packed in moss, the best of which is procured from bogs.

All this labour is a mere trifle, compared with the value of the trees, and ought in no case to be omitted—except when they are to be carried only short distances, and can be kept moist all the time.

ART. CII.—*Cutting Hay for Horses; by* AMOS SHELTON.

[FROM THE GENESEE FARMER.]

Our readers may recollect that we published two or three articles last summer, showing the great advantage which resulted from cutting hay for horses, to the animal, and to the owner in the economy of food, in the practice of Great-Britain. We observe by the last New-York Farmer, that the experiment has also been successfully made in this country, in two of the most extensive horse establishments, that of Mr. Reeside, at Philadelphia, and that of Mr. Bloodgood, at New-York. We copy the result of Mr. Bloodgood's experiment from the Farmer:

"In six months of 1831, when the hay was not cut, the following quantities was brought for the consumption of twenty horses:

"January, 4,480 pounds; February, 10.304; March, 2,240; April, 15,680; May, 6,300; June, 5,000.—Total, 43,904 pounds.

"In six months of 1833—January, 4,000 pounds; February, 5,000; March, 5,300; April, 2,000; May, 7,000, June, 5,000. Total, 28,000 pounds.

"One bushel of cut hay is given three times a day, with four quarts of ship stuff, and two quarts of Indian meal, at each feeding. Oats are sometimes given once a day instead of the hay and meal. Under this feeding, which may be considered pretty high, the horses, though they labour hard, are kept in much better condition than when long hay and oats were given. The present plan of feeding is considered to be a saving in expense at least one-third."

In connexion with the above, we publish the following letter, which we find in the New-England Farmer:

BEVERLY, JAN. 25, 1834.

Mr. J. R. Newell,—Dear Sir,—It is with pleasure that I comply with your request, asking the result of my experience on the subject of feeding stock. My stock consists of 51 head, viz.: 8 horses, 6 oxen, 35 cows and 2 yearlings. This stock was fed in the usual way with English, salt and fresh meadow hay, with meal and potatoes, as their condition required, to the 1st of December last, at which time I commenced chopping my hay. In giving the result of my experiment, I must in some measure ask the privilege of a yankee, viz. that of guessing; but in this case I think I can guess pretty correctly, as much of the hay has been loaded in consequence of having to remove it from one barn to the other, and calculating the number of days a load would last, the result is as follows:

700 lbs. English hay, at $16 per ton,	$5.60
200 do. fresh do. 4 do.	40
100 do. salt do. 8 do.	40
3 bushels corn-meal,	2.25
8 do. long red potatoes,	1.60
Per day,	$10.25
400 lbs. English hay chopped, $16 per ton,	3.20
100 do. fresh do. do. 4 do.	20
100 do. salt do. do. 8 do.	40
3 bushels corn-meal,	2.25
4 do. long red potatoes choppe l,	80
140 gallons pure water,	0.00
1 man at $8 per month,	31
Board of man $1.50 per week,	23
Per day,	$7.39

Balance in favour of Straw Cutter, $2.86 per day.

In addition to the above balance may be added an increase of six gallons of milk from twenty-five cows then in milk, and likewise something for the improvement of the condition of my whole stock.

Yours, respectfully,

AMOS SHELDEN.

Art. CIII.—*Economy of Fuel.*

[FROM THE GENESEE FARMER.]

We have examined with interest, a small work, detailing "*Experiments to determine the comparative quantity of heat evolved in the combustion of the principal varieties of wood and coal, used in the United States, for fuel; and also to determine the comparative quantity of heat lost by the ordinary apparatus made use of by their combustion.*—By Marcus Bull." The experiments seem to have been made with great accuracy, and the results afford a matter of interest to every householder.

Mr. Bull has ascertained the cost of fuel used in Philadelphia in a given year, to be $80,043, which being divided among the population, gives $7,04, as the average cost of fuel to each inha-

bitant, supposing the consumption to be equal. Adopting this estimate as a fair average for the population within ten miles of tide water, in the Atlantic States, from Maine to Georgia, it gives an aggregate of twenty-one millions of dollars as the annual cost of fuel for this portion of population, which is estimated to amount to three millions of souls. Estimating the cost to the remaining eight millions and a half of our population, at half the above price, or $3.50 to each individual, he gives us an aggregate of about fifty-one millions of dollars the total annual expense of fuel, for every purpose, in the United States.

The economy of fuel is to be studied—1st, in the kind to be selected for use; 2d. in its quality and prepartion for use; and 3d. in the choice of the apparatus in which it is to be used.

In regard to wood.—The quantity of heat evolved by a cubic foot of the several kinds, when in a perfect dry state, is very nearly in the ratio of their specific gravity, or relative weight; as for example, the specific gravity of shell bark hickory being $1.00 a cord weighs 4469lbs.; by the same scale the specific gravity of white pine is 476, and the cord weighs only 1868lbs. The quantity of heat evolved by a pound of white pine is as great as that evolved by a pound of hickory. The difference in value arises from the great disparity in weight—the hickory weighing as 22, and the pine as 9—and their relative value being—hickory 100, white pine 42—or the first being considerably more than twice as valuable as the latter. The table which we shall append will exhibit the relative value of the different kinds of fuel in common use.

Charcoal forms a considerable item of fuel; and the facts which Mr. Bull has given us upon the subject will be found to be new and interesting. The value of charcoal, like that of wood, is principally to be determined by its weight—a pound from one kind of wood affording about as much heat as a pound from another kind. The quantity, or rather weight, of charcoal, afforded by the different kinds of wood, is nearly in proportion to the relative weight of the wood. Thus hickory produces 26.22, the specific gravity of the dry coal being 625; while the white pine produces 24.35, and the specific gravity of the dry coal being only 298 Thus, whether burnt in the form of wood or of charcoal, a cord of hickory affords more than twice the heat that is found in a cord of white pine. The quality of charcoal, however, depends much upon the manner in which it is prepared. The more completely the atmospheric air is excluded from the wood while under the process of being charred, and the more heat that is given to it, the *heavier*, the *harder* and the *better* will be the product. The best charcoal will be found of a slate colour on its surface, dense, sonorous and brittle; while inferior qualities approach to a jet black, and are soft and powdery upon the exterior. To obtain the best

quality, Mr. Bull recommends that the wood be piled in a single tier, that charcoal dust be interposed between the wood, that the pile be covered with clay, and then a layer of sand, to close the cracks which the fire may cause in the clay, and that the fire be communicated at the exterior base. An intelligent collier who partially adopted Mr. Bull's recommondation, gained by 10 per cent. in quantity, by measure; and Mr. Bull found the coal nearly 20 per cent. heavier than usual. If these facts are correct, and we have no reason to doubt them, it would be an excellent police regulation in our towns, to have charcoal sold by weight, instead of by measure.

The loss in weight which wood undergoes in drying, and the moisture which it absorbs, by exposure, after it has become dry, are matters of considerable interest to the farmer, and the consumer. Hickory wood taken green, and made absolutely dry, experienced a diminution of weight of 37½ per cent., white oak 40 per cent. and soft maple 48 per cent. or very near one half. Both wood and charcoal, after being made perfectly dry, absorbed in twelve months, under cover, from 8 to 12 per cent of moisture.

If we assume, says Mr. Bull, the mean quantity of moisture in the woods, when green, at 42 per cent., the great disadvantage of attempting to burn wood in this state, (or to transport it to a distance) must be obvious, as in every 100lbs. of this compound of wood and water, 42lbs. of aqueous matter must be expected from the wood; and as the capacity of water for absorbing heat is as 4 to 1, when compared to air, and probably greater during its conversion into vapor, which must be effected before it can escape, the loss of heat must consequently be great.

Common names of Wood and Coal.	Specific gravity of dry wood.	Avoirdupois of dry wood in a cord	Product of charcoal from 100 parts of dry wood by weight.	Specific gravity of dry Coal.	Pounds of dry coal in 1 bush.	Lbs of charcoal from 1 cord of dry wood.	bush of charcoal from 1 cord of dry wood	Time 10° of ht. were maintained in the room by the combustion of one lb of each article.	Value specific quantities of each article compared with shell bark hickory as the standard.
White Ash, - -	,772	35.50	24.74	,547	28.78	888	31	H. 6 40 .M	Cord. 77
White Beach, - -	,724	32.36	19.62	,518	27.26	635	23	6	65
Black Birch, - -	,697	32.36	19.62	,428	22.52	604	27	6	63
Chesnut, - - -	,522	23.33	25.29	,379	19.94	590	30	6 40	52
White Elm, - -	,580	25.92	24.85	,357	18.79	644	34	6 40	58
Shell Bark Hickory, -	1,000	44.69	26.22	,625	32.89	1172	36	6 40	100
Pig Nut Hickory, -	,949	42.41	25.22	,639	33.52	1070	32	6 40	95
Red Heart Hickory, -	,829	37.65	22.90	,509	26.78	848	32	6 30	81
Horn Beam (Iron Wood)	,720	32.18	19.	,455	23.94	611	25	6	65
Hard Maple, - -	,644	28.70	21.43	,431	22.68	617	27	6 10	60
Soft Maple, - -	,597	26.68	20.64	,370	19.47	551	28	6	54
White Oak, - -	,855	38.21	21.62	,401	21.10	826	39	6 20	81
Shell Bark White Oak,	,775	34.64	21.50	,437	22.99	745	32	6 20	74
Pin Oak, - - -	,747	33.39	22.22	,436	22.94	742	32	6 20	71
Red Oak, - - -	,728	32.54	22.43	,400	21.05	630	30	6 20	69
Rock Chesnut Oak, -	,678	30.30	20.86	,436	22.94	632	28	6	61
Pitch Pine, - -	,426	19.04	26.76	,298	15.68	510	33	6 40	43
White Pine, - -	,418	18.68	24.35	,293	15.42	455	30	6 40	42
Lombardy Popular, -	,397	17.74	25.	,245	12.89	444	34	6 40	40

The above is merely an abstract of Mr. Bull's table, comprising the woods in most common use among us. The last column exhibits the relative value of a cord according to the heat which each affords. Thus if hickory is worth one dollar, pig nut hickory is worth ninety-five cents, hard maple sixty cents, white oak eighty-one cents, white pine forty-two, pitch-pine forty-three cents, &c.

We will now exhibit, in tabular form, the relative value of coals, by the same standard, merely remarking, that a ton of anthracite coal is considered about equal to a cord of shag bark hickory.

COAL.	specific gravity dry coals.	Lbs. of dry coal in one bushel.	Time of 10° of heat were maintained in the room by the combustion of 1lb. ea. ar.	Value of spec. quan. of each art. compared with the shell bark hickory as the stand.
			H. M.	Ton.
Lehigh Coal,	1494	78.61	13 10	99
Lackawana do.	1400	73.67	13 10	99
Rhode-Island do.	1438	75.67	9 30	71
Schuylkill do.	1453	76.46	13 40	103
Susquehanna do.	1373	72.25	13 10	99
Worchester do.	2104	110.71	7 50	59
				100 bushels.
Liverpool do.	1240	65.25	10 30	230
Richmond do.	1246	65.56	9 20	205
Hickory Charcoal	625	32.89	15	166
Maple do.	431	22.68	15	114
Oak do.	401	21.10	15	106
Pine do.	285	15.	15	75
Coke do.	557	29.31	12 50	126

Mr. Bull's experiments were made in a sheet iron stove, with 42 feet of two inch pipe, having about twenty elbows. A thermometer placed at the termination of this pipe indicated the same temperature as another hung against the wall of the room; which showed that all the heat given off by the combustion of the fuel was retained in the room. On the supposition that 100lbs. of fuel, consumed in this stove, would maintain a temperature

of 60° for 12 hours, he found, that to maintain the like temperature for the same time by other apparatus, the fuel must be increased as follows:

In the experiment stove it required - - -	100lbs.
In a short iron cylinder stove, the interior surface covered with clay lute, with nine elbow joints, and 13½ two inch pipe, - - - - - -	105 "
In a like stove and pipe, with 3 elbow joints, -	122 "
In a like stove, with 5 feet of pipe and one elbow,	140 "
In a like stove, without clay lute, one elbow, and 5 feet 4 inch pipe, more vertical than the preceding,	222 "
In an open Franklin, with one elbow, and 5 feet of 6 inch pipe, - - - - - - -	270 "
In an open ordinary parlor grate, - - -	555 "
In an open chimney fire place, - - - -	1000 "

It would seem from these experiments, that nine-tenths of the heat given off by fuel, burnt in an ordinary fire place, is carried off in the draft, without benefiting the room; that nearly one-half is wasted when the fuel is consumed in an open parlor grate; and that lining a stove with fire brick, or clay lute, produces a great economy in fuel.

Art. CIV.—*Economy in Feeding Cattle.*

[FROM THE NEW-ENGLAND FARMER.]

There is a remarkable difference in cattle's eating straw when fresh threshed, and when it has been threshed several days. But if fresh threshed straw is cut and mixed with hay of pretty good quality, and the whole sprinkled a little with pretty strong solution of salt and water, and permitted to lie in a heap for several days the mixture will improve in quality.

Much chaff and straw that is often thrown away, may with a little pains be made good fodder for cattle, by being mixed with corn-stalk cut with a machine, and sprinkled with fine salt and water, if the mixture will bear wetting. The sweetness of the stalks and hay is imbibed by the chaff and straw, and the whole will make a compound very agreeable to cattle. They should not, however, be confined wholly to salted food, but have fresh messes a part of the time.

When young animals are pinched for food at an early part of their growth, or fed with such as is not of a sufficiently good quality, they never thrive so well, nor make so good stock afterwards. It is said in Young's *Farmer's Calendar*, that "in the winter the yearlings should be fed with hay and roots, either turnips, carrots, potatoes, mangel wurtzel, or ruta baga, and they should be thoroughly well fed, and kept perfectly clean by means of litter. At this age it is matter of great consequence to keep such young, as well as possible; for the contrary practice will stop their growth, which cannot be recovered by the best summer food. If hay is not to be had, good summer straw must be substituted, but then the roots must be given in greater plenty and with more attention. To steers and heifers two years old, the proper feed is hay, if cheap, or straw, with baits of turnips, cabbages, potatoes, &c. It is not right to keep yearlings calves and two years old together, because in general the younger cattle are, the better they must be fed."

When a farmer is apprehensive that he has too much stock for his fodder, it is best not to stint them in their allowance as much in the fore part as in the latter part of winter; for cattle are more liable to be pinched with cold in December and January than afterwards when they become habituated to rigorous weather. Advantage may also be made of browsing more in the latter than the fore part of winter, as the buds begin to swell and the twigs have more sap in them in the early part of the season.

If a farmer proposes to feed his cattle with potatoes or other roots, it will be better to give them but a small quantity at first, increasing it by degrees as they become accustomed to that sort of food. It will, likewise, be better to give them a little every day than a large quantity once in three or four days or a week.

Art. CV.—*Domestic Economy.*

[FROM THE NORTHAMPTON COURIER.]

There are some simple questions in domestic economy, which are worthy the attention of all our farmers and agricultural men. They relate immediately to the importance of possessing good stock, and valuable species of animals, which appear to excite but little attention in most agricultural communities. Cows which yield only their ten quarts of milk per day to one man,

are certainly much less productive than his neighbour's animals, which, perhaps, with the same expense in labour and keeping, yield him his twenty quarts. The profit of two dairy farms, where the relative difference between the animals is in such striking disproportion, would astonish every individual when ascertained at the termination of the year. Yet this is hardly an imaginary case. Regardless of considerations like these, a large number of poor, comparatively worthless animals are kept by our farmers, who cannot be impressed with the great importance of substituting better and more profitable beasts in their stead.

But sheep husbandry will illustrate this principle more fully. A. has a flock of eight hundred Saxony or Merinoes, which yield four pounds at each shearing, making the product of his flock 3200 pounds annually. At the price for which wool is now selling in Boston, say 75 cents, the proceeds of A.'s sheep would be $2400; B. his neighbour has an equal number of sheep, though of an inferior quality, but requiring the same food and attendance as A.'s. They will yield, perhaps 3 pounds to a fleece, giving annually 2500 pounds. This sort of wool at 40 cents, the present price, will yield B. $960, making a difference of $1500 between the productive character of A. and B.'s sheep. Now it is one of the first principles in political economy to obtain from the smallest surface of soil or specific number of animals, the greatest amount of grain. By comparing the products of the two flocks of an equal number owned by A. and B. is not the difference, to a discriminating mind, most astonishing?

The above simple exposition of the profits on cows and sheep of different kinds, will apply with much the same force to all animals kept by farmers. An experienced individual, who is intimate with the details of raising sheep, suggests to us the absolute importance that they should be kept well. Indeed, the same remark applies to all animals, from whom profit in the shape of periodical produce is expected. Cows from an insufficiecy of food, or that of an inferior quality, deteriorate both in kind and quantity of their milk, which surely is wretched economy, and sheep, with inferior food and but half enough of it, not only diminish most essentially the amount of wool they yield, but they are unable to sustain their lambs, and the natural consequence follows, they die.

PART III.

MISCELLANEOUS INTELLIGENCE.

Varieties of Vegetables.—There is no doubt that varieties of the same species of vegetables, proceeded originally from one parent source, and assumed difference of quality or colour, from circumstances of soil, climate and culture. By coupling the ferina, the seed is gradually changed, and when practiced with judgment, the general qualities of the fruit must be improved, and a variety of the species introduced. New kinds of potatoes are raised every year from seed. and it is stated, in Sir John Sinclair's book, that a farmer had at one time 105 different sorts from the sowing of five kinds of seed. A degree of heat about 50° Faranheit is necessary to stimlate the seeds of plants, p. 77.

Coal is an essential ingredient, in the food of all vegetables. Water that passes through putrifying substances, when evaporated, exhibits the principal part of the residuum to consist of coal, p. 106.

Coal is not only supplied by the land, but also by fixed air, combined with the earths, &c. &c. p 107.

Kirwan says, "That carbonic acid, by superiority of its specific gravity soon precipitates, and is then condensed in, or mechanically absorbed by soils, and is contained in dew, p. 114.

The Academy of Sciences, St. Petersburg, has originated the undertaking of a complete Russian Flora.—*New-Monthly Mag.*

Vegetation at the North Pole.—I also at this time (May) laid out a small garden, planting it with radishes, onions, mustard, and cress. And a similar attempt was made by Lieut. Siddon; but notwithstanding every care and attention which could be paid to it, this experiment failed, the radishes, not exceeding an inch in length, by the latter end of July, and the other seeds being altogether thrown away; not even a single crop of mustard and cress could be thus raised in the open air, and our horticulture was once more confined to my cabin. I may remark, common ship's peas was sown by our people for amusement, and were found to thrive so well, that had I been aware of it, a great quantity, at least, of this vegetable, might have been grown, which boiled and eaten as greens, would have been no small treat to persons deprived of fresh vegetable substance for more than ten months.—*Parry's Voyage in 1819 and 1820*, p. 146.

Animal Power.—Dupin states, that the animal power in Great-Britain is eleven times as great as the manual power, while in France it is only four times as great.

The following is the number of horses for every 1000 inhabitants in the countries mentioned. Hanover, 193; Sweden, 145; Canton de Vaud, in Switzerland, 140; Great-Britain, 100 Prussia, six Provinces, 95; France, 79.—*Quar. Jour. of Agr.*

Electrified Seeds.—*M. Aster* has discovered that seeds which are electrified, run through the first stages of vegetation more rapidly than others; and that China roses submitted to this experiment, produce flowers sooner, and in greater abundance.—*Quar Jour. of Agr.*

Crimson Clover, (Trifolium incarnatum.)—This clover if sown in autumn after a crop of potatoes, or other roots, produces a crop next spring fit to be cut for soiling cattle, eight days earlier than lucerne, and a fortnight before red clover. It produces two excellent crops in one year, the first of which should be cut as soon as it comes into flower, and the second will produce a considerable quantity of seed. If sown in spring, a full crop will be produced in July and August.—*Ibid.*

Wax-Tree.—During my stay at Natal, the Governor showed me a species of wax, which is produced from the leaves of the Carnaüba, a tree I have frequently mentioned. The wax drops from the leaves during the heat of the day.—*Koster's Travels in Brazil.*

New Plant.—A species of Palma Christi, which grows in Morocco, the nuts of which mixed with any food, affects a person for three hours, and then passes off. These the natives often use when they wish to discover what occupies the thoughts of the individual to whom it is administered.—*Jackson's Hist. of Morocco.*

Statistical.—*The Measures* of the British Government towards the West-India Islands, it is calculated, will cut off £7,000,000 per annum, of British exports, and 250,000 tons of British shipping.

On rendering Timber more Durable.—Every well improved farm has much timber in the form of posts, sills, &c. exposed to the damp; and subject to decay in a longer or shorter period, according to the quality of the wood. The less corruptible kinds, such as locust, red cedar, and mulberry, are therefore in much demand; and if by any cheap and simple process, the more inferior kinds could be rendered equally durable, the saving would be manifest and great. It has been observed that some timbers belonging to old salt works which had become saturated with that mineral, were very sound; and it has been proposed as an improvement on this hint, to bore holes with an augur into the lower and most exposed parts of common fence posts, fill them with salt, and secure it with a plug. Others char the bottoms af their posts. The *rationale* of this benefit is said to be that the wood is surrounded by carbonic acid, a well known preservative from corruption; but we doubt if attempts of this kind can prove very successful, as that acid cannot easily be retained at the surface where it is most wanted; and we should ascribe whatever benefit, if any, has been derived from the process, to the *seasoning* rather than the *charring* of the wood.

For the purpose of calling up this subject in another form to the attention of our readers, we copy from the Rail-Road Journal, an article intended to prove the advantage of saturating timbers with lime. If upon careful experiment it should be found useful in common timber, its effects should be tried on the more porous and inferior kinds.

We do not believe that the ends of beams, inserted into brick walls, decay on account of the causticity of the lime; for in such situations it is not in the nature of things that the lime should continue caustic. It rapidly absorbs carbonic acid, and would become mild before the beams could be sensibly affected; and we therefore ascribe the decay, either to the dampness, or to that peculiar fungus called the dry rot.

Wood Snapping on the Fire.—I believe we have no wood in this country that is more worthless for fuel than the Butternut. A few *cuts* of this kind, how-

ever, about ten inches in diameter, had been split in two, left some weeks to dry, and then carried into my chamber. On placing one stick on the fire, it began to snap most remarkably: sometimes there were not less than fifteen or twenty sparks on the carpet at once; and the inconvenience was serious. What was to be done? I happened to recollect a paragraph in your 2d volume, taken from some eastern paper, stating that *wood snaps on the fire from the side nearest to the heart.* It was so in this case. I just turned the log over, and at once the difficulty was at an end; for though it continued to snap for some time against the back plate, yet no more sparks came into the room.

When I put on the next log I was particular to turn the heart backwards, and I have had no trouble from snapping since. Now the knowledge of this thing is but a trifle indeed, but it may be worth knowing, for I have often seen the guests round a parlour fire starting up to put out the sparks, when I presume nothing more was wanting than to turn over a stick.

A Farmer.—*Gen. Far.*

Barking Trees.—It often happens that fruit trees, more particularly apples, and pear trees, are stript of their bark during the winter by sheep, rabbits, or mice. When such accidents do happen, such trees should not be looked upon as lost, but as soon as the sap begins to circulate freely in the spring, they should be repaired, by fitting in pieces, on every side, to keep up the circulation between the top, and the roots.

The following directions, will enable those who shall be so unfortunate as to have any of their trees injured by mice, or otherwise, to repair them without incurring any great expense.

Where the bark has been taken from the bottom of a tree, as soon as it is discovered, it should be covered up to prevent the wood from becoming dry. During the month of May, uncover the wood, and with a chissel, or some other instrument, cut off from the tree, so much wood as will leave a flat surface, equal in width, to the piece to be inserted Let this extend so far up and down as to reach the sound bark, and make the cut square in at the ends. Procure a piece of wood from a growing tree of the same kind whether apple or pear, cut it of a suitable length, split off a piece from one side of it, cut the ends smooth with a knife, being careful not to bruise the bark, fit it closely into the place prepared in the side of the tree, having the greatest proportion of the sap flow, or line between the bark and wood, that can be, come in contact. Proceed in the same way on different sides of the tree, after which bind the whole part with some bark, or strings made from flax, and cover the whole with earth, if it does not extend too far up the tree. If the bark was removed too far up, to be convenient for covering with earth; take some strips of cotton cloth, dip them in melted grafting wax, and wind them on in such a manner as to make the whole air tight. If well done the pieces will unite at both ends, and soon extend so as to cover the wound.

Butter.—A friend waited on us, yesterday, to communicate the result of a process, which had been recommended to him, of restoring butter to its original sweetness. Incredulous as he was, he made the experiment, and he authorizes us to say it was entirely satisfactory. It consists simply of churning the butter with sweet fresh milk, in the proportion of about 2lbs. of the former to a half gallon of the latter. Butter, thoroughly rancid, by this simple process, was rendered sweet and good.—*Fredericksburg Arena.*

Care of Farming Tools.—A topic not yet sufficiently enforced on the attention of farmers, is the wasteful negligence evinced in the exposure of agricultural implements to the injuries of the seasons. The sleds curling and cracking by the side of the wall in summer, and the cart half buried in snow and seasoning in the winter storms, are symptoms of waste and extravagance, which ripen into a consumption, to be hastened to premature termination by

the visits of the sheriffs. The whole secret of wealth consists in economy, and the prudent care of those small rills which without great vigilance, are slipping through the chinks of the best woven purse; and it may be considered quite as safe to predict that none of these slovenly gentleman will be prosperous, as to write in the style of the calendar soothesayers, through the printed pages of the month of January, "expect snow about these days." The price of the time lost when it is most valuable, in putting the exposed articles in proper repair, not speaking of the cost of the materials and the interruption of business, would defray the expense of erecting ten such cheap sheds as would cover them from the storms, protect them from decay, and keep them ready for immediate use.—*Nat. Ægis.*

Winter Butter.—We acknowledge with pleasure the receipt of two fine specimens of butter, made and presented by Mrs. M. W. Howard of the Vaughan farm. It is beautiful in appearance and excellent in taste, and proves that even during the rigorous winters of Maine, butter that would suit the most fastidious palate may be made, if proper skill and care be brought to the business. Mrs. H. says "That there is nothing peculiar in the process. Before setting the milk, I pour a sufficient quantity of boiling water into it, to make it nearly as hot as it can be borne by the finger. Keep the cream from freezing, and when it is ready to churn, add the juice of a midling sized carrot to four quarts of cream.—*Winthrop Far.*

Salt for Sheep.—In a conversation with us, very recently, an intelligent agriculturist who had bestowed considerable attention on the sheep business, advanced the doctrine, that salt was injurious to sheep, in the winter season, when confined to dry fodder; and that none should be given them during the winter, nor in the spring, till after they had been shorn. He said several years of experience had proved to his satisfaction, that sheep thus treated were more free from disease; and would generally, be entirely free from that disgusting accumulation of filth about the hind part of the fleece, so common at the season of shearing. This was new to us; and, we were induced, to examine some of the standard writers on this subject.

Daubenton recommends salt to be given to sheep in France, in cold weather, also when the weather is foggy, or when it rains or snows; but says, it should be given in small quantities; as too much heats, or injures them. Livingston, however, informs us, that in Spain, no salt is given to the travelling flocks in the winter, nor on their journey; but when they arrive at the place of their summer pasture, they are allowed as much as they will eat. No reason, however, is assigned, for not giving salt in the winter; but much, undoubtedly, may be inferred from the uniform practice, in this respect, of the Shepherds of Spain. Such authority is, no doubt, a sufficient warrant for trying the experiment. It will probably be a safe one; and, may result in important benefits to the owners of flocks.—*Northern Farmer.*

Worth attending To.—As this is about the time when our friends are beginning to smoke their meat, it may do them some good, to inform them that a small bit of brimstone about the size of a chinquepin, thrown into the fire once a day, will effectually prevent skippers and bugs from getting into the bacon. This information we have from a friend whom we highly esteem, and who assured us that he had so fully tried the efficacy of this plan that he wished us to make it generally known. He added that no uncommon smell or taste is imparted to the bacon. We deem this information of great inportance to those who have bacon to cure; also to those who have to buy it.—*Salis. Watchman*